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THE PLANNING OF MEDICAL SERVICE FOR PRESENT NEEDS AND FUTURE REQUIREMENTS

PRESIDENT'S ADDRESS

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Those of us whose privilege it was to serve our country during the first world war and to observe in the past few years the gradual destruction of principles for which we fought now face a new world conflict. Those of us who have an opportunity now to participate in the defense of our nation must turn our attention to a study of medical needs during the present emergency and to planning for the postwar world. Such planning should consider the rehabilitation of mankind and the establishment of a permanent peace which will assure to every man, woman and child freedom of thought, freedom of action and liberty. Hate, despotism and tyranny should have no place in a postwar world dedicated to humanity. Medicine has a fundamental role and will assume an integral part in the establishment of enduring world peace. Without healthy minds and bodies, no nation of civilized men can survive or prosper.

The government of the United States was founded on certain principles which establish our present mode of living, thinking and acting. These principles were written into our Constitution by Thomas Jefferson, the anniversary of whose two hundredth birthday we recently celebrated. The dedication of a memorial to him, in the city of Washington, pays tribute to a great man who wrote "We hold these truths to be self evident: that all men are created equal, that they are endowed by their Creator with certain unalienable rights; among these are life, liberty and the pursuit of happiness." He also gave expression to a guiding principle, on which a sound program of medical planning is based, when he said "I have sworn upon the altar of God eternal hostility against every form of tyranny over the mind of man." The achievements of the medical profession in our country are an example of the wisdom of such freedom. By scientific progress in the control of infectious diseases, including the almost complete eradication of a few diseases by prophylactic inoculations, prevention of accidents, establishment of adequate public health measures and development of better curative treatments, many years have been added to the span of life.

The present global war, with its far flung battle fronts, has created many new and unexpected problems and has placed heavy demands on the medical resources of our country. As the war progresses in duration and in intensity, these demands will be greatly multiplied. We must be prepared to meet medical problems as they arise, to supply the immediate needs and to formulate plans for effective service under changing conditions. In formulating such plans the American Medical Association is not an isolated unit. For the greatest good, the combined and cooperative efforts of all organizations interested in medical care must be enlisted as participants in the program. The American Medical Association, the American College of Surgeons, the American College of Physicians, the American Dental Association, the American Nurses Association, the Association of American Medical Colleges, the United States Public Health Service, the Medical Corps of the Army and Navy, the Procurement and Assignment Service are vitally interested in the perfection of plans which will furnish better and more evenly distributed medical service for our people. I know of no time in the history of American medicine when such an undertaking could be more effectively or usefully initiated than now!

MEDICAL EDUCATION

The maintenance of an acceptable program of medical education is an essential part of the war effort. To meet present military and civilian needs, the Council on Medical Education and Hospitals of the American Medical Association and the Association of American Medical Colleges have endorsed a continuous program of medical education and training in most of the medical colleges of the United States. With this acceleration of the educational program a medical student completes a four year course of study in three calendar years. The establishment of this program has thrown an additional burden on already depleted faculties of medicine. Much less time can be given to investigative work, which is an important contribution of these institutions to the advancement of medical teaching and knowledge.

The lowering of the draft age to 18 years and the establishment of Specialized Collegiate Training Programs by the Army and Navy for premedical and medical students place further responsibilities on the members of faculties of medicine. The selection and assignment of students to various courses and institutions, together with the interruption of study by the fulfilment of a thirteen week military training program for those in the Army, still further complicate a difficult situation.

Provision has not been made for the education and training of doctors for civilian practice. Approximately 20 per cent of the facilities of each medical school can be utilized for the training of women and men physically disqualified for military duty and a few deferred by Selective Service. From these sources, civilian and other nongovernmental needs must be met. With the

President's address before the American Medical Association at the House of Delegates Session, Chicago, June 8, 1943.

graduation of approximately 6,000 students each nine months, it is estimated that 1,200 can be used as replacements for civilian needs. This will be increased by five or six hundred physicians who are being retired from the military services each year. Most physicians who serve civilian needs are over 45 years of age; consequently the expected mortality will be high, amounting to 2,500 or more each year. Plans should be formulated now for the better utilization of this group when the necessity arises.

SUPPLYING CIVILIAN NEEDS

The rapid expansion of essential war industries has necessitated an unpredictable and unexpected increase in the resident population about many of these plants. With such a rapid increase in population, unusual demands have been made for housing, sanitation and medical care. In some localities these needs could not be immediately supplied, thus causing acute distress. To formulate plans and recommendations for the handling of such emergencies, the War Participation Committee of the American Medical Association, in conference with the United States Public Health Service and the Procurement and Assignment Service, agreed on certain methods of procedure which could be utilized to meet these emergencies. These recommendations have been published in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION and were sent to the department of public health in every state and to every state chairman of the Procurement and Assignment Service.

Much has been said of the importance of redistribution of physicians throughout the United States; indeed, some have urged the creation of a governmental agency to supply medical care to all who require it. When the medical needs of a community cannot be met at a local or state level, the state medical society may request the central office of the Procurement and Assignment Service, with the help of the United States Public Health Service, to supply the need by relocating physicians. An attempt is first made to relocate physicians within the state for such service; when this is not possible, they are obtained from other states. For the period ended March 31, 1943 thirty-three states reported to the Procurement and Assignment Agency 692 relocations. During 1942 and for the first quarter of 1943 a total of 866 doctors were relocated, not all of these by the Procurement and Assignment Service. Just now, according to the best information available, there is need for approximately 300 additional physicians to supply medical needs in 198 areas. The United States Public Health Service has been most cooperative in helping to supply urgent needs in those communities in which the local and state medical societies and the Procurement and Assignment Service were unable to give immediate assistance. The Public Health Service assumes this responsibility as an emergency measure, and physicians so assigned are under the direction of the state department of public health. By this procedure areas which required medical service have been supplied with physicians sufficient to meet their needs. This has been accomplished, furthermore, without gross violation of the rights of the individual states to regulate medical practice, of the rights of physicians who have entered military service to retain the practices that they have developed over the years, and of the rights of the patients to receive the medical care that they required.

MILITARY PERSONNEL

The American Medical Association has a continuing interest in every physician who has joined the military forces. Our obligation to keep physicians informed concerning matters of military importance is the publication in each issue of THE JOURNAL, under the special heading "Medicine and the War," of the activities of various agencies in national defense. Scientific achievements, as related to war, are published in THE JOURNAL as well as in *War Medicine*.

In view of the emergency, all large medical meetings have been postponed for the duration of the war. Previously medical meetings served to supply short postgraduate courses for many members. The discontinuance of these meetings created a new obligation for organized medicine. With the approval of the Surgeon Generals of the Army, the Navy and the United States Public Health Service, the American Medical Association, in cooperation with the American College of Surgeons and the American College of Physicians, is now offering a series of "Wartime Graduate Medical Meetings" to all service hospitals of the Army and Navy over the entire United States. The committee in charge of this program has the help of a large group of consultants in special medical fields, as well as the aid of most medical schools. The organization of a faculty for graduate medical training contemplates making available to military organizations various types of medical instruction conducted in the form of lectures, clinics, round table discussions and ward rounds. The program consists of thirty or more different subjects, from which each organization may choose six or eight for presentation by experts. Thus medical leadership again proves itself alert to the needs of the hour.

THE PROCUREMENT AND ASSIGNMENT SERVICE

Before the declaration of war, the Committee on Medical Preparedness of the American Medical Association had prepared a roster of all physicians of the United States with detailed information relative to their training, their professional qualifications and their scientific achievements, and a statement as to their availability for military service. With the establishment in October 1941, by executive order of the President of the United States, of the Procurement and Assignment Service for Physicians, Dentists and Veterinarians, the accumulated data of the Committee on Medical Preparedness became available for the beginning of this work. Shortly after the establishment of this service and before either an adequate secretarial staff or permanent quarters could be obtained, and before members of the board could become fully acquainted with the problems involved, war was declared! With the declaration of war there was a request from the Surgeon General of the Army for the recruitment of a large number of physicians for duty with the medical corps. To supply this demand the only available data were those furnished by the Committee on Medical Preparedness. During the active stage of supplying this need it soon became evident that the voluntary enlistment of physicians would deprive many communities of essential medical service. A committee on the Allocation of Personnel was created to determine the distribution and effectiveness of the available physicians and dentists in each state and to establish a measure whereby the medical and dental needs of each state could be equally and fairly adjusted. With the aid of the United States

Public Health Service, statistical data were accumulated and after many conferences a quota of one physician to fifteen hundred persons was established.

As a result of these investigations it soon became evident that many states had surpassed their quotas of physicians and dentists, while other states were far behind their allotment. When war was declared 13,000 physicians were on duty with the Army and Navy. During 1942 this was increased to approximately 42,000; the requirements had been met. During 1943 approximately 11,000 additional physicians will be required, representing about all that can safely be spared from civil practice. According to the quota system previously established, this number must be drawn from thirty-four states. There are only fifteen states which must yet supply more than 100 physicians each. This does not mean that recruitment will be discontinued from states without quotas for 1943. Certain large cities in these states have a physician-population ratio greater than the standard accepted. These cities will be called on either to furnish physicians for communities within that state which are in need of doctors or to declare their younger men available for military duty.

The recruitment program is being pushed now in some five or six states that are a little backward about supplying their proportion of physicians. While the enlistments just now are behind schedule, I am convinced that we still have enough available patriotic physicians to supply the needs of our armed forces on a voluntary enlistment program. Physicians have never failed to respond in an emergency and they will *not fail now*.

The Procurement and Assignment Service is the only federal agency directly concerned in maintaining a sufficient number of physicians in civil practice to maintain medical education at its present level, to supply the medical needs of industry and to furnish medical care for the civilian population. Medicine is honored in being the only group in our population with such a responsibility assigned to its own members. This activity has been possible only through the cooperation of local and state chairmen of the Procurement and Assignment Service with the directing board. The seriousness and earnestness with which these men have performed their duties is a source of gratification. The criticism aimed at the Procurement and Assignment Service for alleged mistakes or deficiencies has usually emanated from sources ignorant of its accomplishments or seeking to promote disruption in medical affairs. Such criticisms have in most instances been made without any investigation of the truth or falsity of the claims. As a member of this board I feel that it has performed a creditable task; its accomplishments have been achieved through the voluntary effort of doctors and it will continue in the future, as it has in the past, to meet honestly and fearlessly the obligations placed on it by the President of the United States.

PLANNING FOR POSTWAR MEDICAL SERVICES

After the cessation of hostilities the American Medical Association, with its 123,000 members, faces the obligation of directing the intelligent planning and continuation of procedures which can be utilized in the rehabilitation of the health and medical needs of our people and, through other agencies, made available to the countries of our allies. Problems will arise in this country that will need serious consideration. No doubt the greatest challenge to the medical profession that will come to us and to other agencies responsible for the readjustment that must take place after the war concerns the reabsorption into medical practice of doctors who will return from military service. During the past two years, through my connection with the American Medical Association, the American College of Physicians and the Procurement and Assignment Agency, it has been clearly shown that many communities, particularly those in rural districts, have suffered because of an uneven distribution of public health facilities, hospital beds and medical personnel. We should now be planning methods for overcoming these inequalities. Our present system for the education and training of medical students necessitates some provision which will enable them to go to rural communities and to practice there the type of medicine for which they have been trained. Arrangements may be developed whereby such communities can establish medical centers through which necessary hospital and laboratory facilities for the diagnosis and treatment of disease will be available for all civilian needs. The Beveridge plan and the report of the National Resources Planning Board indicate that the trend of medical practice inclines toward the establishment of the hospital and the medical center as the sources for distribution of medical care. The present emergency has accentuated the needs for such an arrangement. Even now in areas of great distress the local profession, in cooperation with the United States Public Health Service and other federal agencies, can arrange for the establishment of such facilities for the use of these communities.

It will be an obligation of the medical profession to provide for the physicians who return from military duty an opportunity to have refresher courses or postgraduate training which will bring them up to date on the newer methods of diagnosis and treatment which have been developed during their military service. No doubt the government will recognize its obligation in making such provisions possible. The general practice of medicine will require more physicians than are now engaged in such service. The development of a community hospital service staffed with an adequate number of specialists capable of administering to the needs of a large number of people would make more physicians available to provide general medical service for the community.

The successful completion of such a program cannot be accomplished by the medical profession alone. Physicians, dentists, nurses, public health officials, hospital administrators and technicians, as well as governmental agencies interested in the health needs of a community, must cooperate in its development. Such a cooperative group can plan for the essential needs and for the proper distribution of medical care so that the greatest good can be achieved.

The maintenance of the high standards of medical education which now prevail, reached through the continuous striving of medical leaders, together with ample provision for medical research, is fundamental to continued medical progress. Just now most research is concerned with problems directly related to national defense. The results of some of this can be utilized in civilian life, such as the advancement in chemotherapy, the study of virus diseases and tropical medicine. The development of new drugs for the treatment of disease, and particularly the results of research in aviation, are

only a few of these benefits. There is, and will be for the duration, a diminution in investigation concerning many diseases which are constantly with us, such as arteriosclerosis, heart disease, arthritis, cancer and mental disease. Facilities and personnel must be provided to institutions and laboratories for the resumption of studies on these and other unsolved problems directly affecting the health of our people. Stimulation to undertake such work must be furnished by the medical profession to many of those returning from military service war weary and exhausted. The time is not too soon for those who are far sighted to survey the field and to lay the lines of attack on these unsolved problems.

A committee on Postwar Medical Planning of the American Medical Association working in cooperation with similar committees from the American College of Surgeons, the American College of Physicians and other well recognized organizations should now begin to formulate plans whereby the facilities of all groups who occupy a vital part in the rendering of medical care can be most efficiently applied. When the war is over there can be offered to the people a carefully designed technic for the medical rehabilitation of a war sick people. There are many agencies useful in preparing such a program which undoubtedly will help in an undertaking of this nature.

Admiral McIntire pointed out in a recent address that many physicians who are now members of the Medical Corps of the Army or Navy will continue in these services long after the war is over, to meet the medical needs of peoples all over the world. Medical education in most of the Axis and Axis dominated countries has either ceased or progressed at an extremely low level during this war. Medical teaching in some of the countries of our Allies has been continued under serious military stresses. The medical profession of this country may be called on after the war to furnish teachers, instructors and practitioners to many countries to aid in the care of those stricken with disease. We *must be prepared* to meet the demand.

Poverty, hunger and disease know no bounds. Let us recognize our humanitarian obligation and duty, as representatives of a nation which possesses medical and other resources superior to those of any other nation in the world, to make our talents available in this emergency. Let us cooperate with all related organizations and governmental agencies interested in postwar rehabilitation to help in achieving the restoration of health and hope to a world suffering the devastating effects of a ruthless war. Such an undertaking is one of the essentials of an abiding peace. To this end the medical profession dedicates itself until the world shall again be progressing peacefully on the paths of human advancement.

The Origin of Superior Men.—We may conclude therefore that the production of superior men is surely not an accident, that it has only a slight affiliation with income, that it is closely related to the kind of persons residing in New England and in the block formed by Colorado, Idaho, North Dakota, South Dakota, Utah and Wyoming from 1870 to 1900, and that these persons probably diverged from the average of the country toward the qualities which make persons in 1930 learn to read, graduate from high school, spend public funds on libraries rather than roads and sewers, own their homes, avoid homicide and be free from syphilis.—The Origin of Superior Men, *Scient. Monthly* **56**:424 (May) 1943.

THE PARAFFIN WAX OPEN AIR TREATMENT OF BURNS

LIEUTENANT COMMANDER RALPH C. PENDLETON
MC-V(S), U.S.N.R.

The present global war has resulted in so many serious burns occurring *en masse* that surgeons face a challenge to devise some simple method of treatment which will be effective, humane and at the same time simple enough for application by inexperienced assistants to overworked doctors and nurses. In the emergencies of civilian and military bombings during the past few years, patients have necessarily been treated by many different doctors and by many types of treatment. Sufficient experience is now available to permit evaluation of various methods so that some uniformity of the best treatment can be established.

The following simplified technic that is presented has been employed successfully in private practice for

Fig. 1.—Gauze mesh becomes enmeshed in the tiny proliferating epithelial cells. Each removal, even when wet, will delay healing and frequently increases scarring. Toxic materials are no menace when they are flushed off without trauma.

the past twenty-two years and is believed to be peculiarly suitable for present war conditions. A colored moving picture will demonstrate the technic that was used in a series of cases at the Mare Island Naval Hospital.[1] Of special interest to orthopedic surgeons is the absence of restricting gauze bandages, which encourages early free motion and prevents many contractures and deformities which have occurred in the past.

The treatment of any burn is naturally divided into general systemic care and local treatment and dressing. As far as general systemic care is concerned, the treatment of early shock has been fairly well standardized. Morphine for the relief of terror and pain is in common use. Plasma is still the best agent to maintain blood proteins, to supply liquids and to prevent and

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1. Technic and motion picture presented before the American Academy of Orthopedic Surgeons in Chicago, Jan. 17, 1943.

diminish hemoconcentration. When at all possible and absence of nausea permits, liquids by mouth are given generously and a high protein diet is used.

Late shock, which seems to be precipitated by that vague substance called burn toxemia, when accompanied by loss or destruction of blood, is most effectively controlled by whole blood transfusions.

There is also general accord in combating severe systemic infections which are dreaded complications of burns by the use of some sulfonamide compound internally. Our armed forces are using this method in the field prophylactically, as well as preventive inoculation for tetanus before combat service.

However, the paraffin wax open air treatment, which is a local dressing, varies from any other treatment in the following respects:

1. No cleansing or débridement is necessary before application of the wax.
2. No gauze or disposable tissue is incorporated in the wax.
3. Frequent shower baths form part of the treatment.
4. No dressing or covering other than the wax is employed, thus permitting early motion and constant observation.
5. One technic serves for burns on all parts of the body.
6. The same treatment is used for first aid and for definitive care.

Paraffin Wax Formula

Paraffin wax	670 Gm.
Household wax. Melting point about 125 F. This softens the skin. For first aid ointment reduce to only 20 Gm. rather than 670 Gm.	
Petrolatum	250 Gm.
Liquid petrolatum (heavy)	150 cc.
Cod liver oil	50 cc.
Cottonseed oil or olive oil has been substituted satisfactorily.	
Sulfanilamide powder	50 Gm.
Resorcinol 10 Gm. in 15 cc. of ethyl alcohol has been used as an effective antiseptic (before sulfanilamide).	
Menthol	1 Gm.
Camphor	1 Gm.
These relieve any itching or burning sensations.	
Oil of eucalyptus	1 cc.
Used as a deodorant.	

Without cleansing or débridement of the fresh burn the paraffin wax formula is sprayed on all burned areas immediately, sometimes preceded by frosting of the burned area with sulfanilamide powder.

The wax and petrolatum are melted on a water bath; then the other materials are stirred in. While still melted, pour the mixture into insecticide spray "guns" and allow to cool (melting point 117 F.). The melting point may be adjusted for use in different climates by increasing or decreasing the amounts of petrolatum or wax. The mixture will keep indefinitely, although it will turn brown if heated excessively. Reheat on a water bath and then spray it. Keep the mixture well agitated to keep the sulfanilamide in suspension.

The application of the wax spray stops pain and minimizes shock. In the wax are incorporated the soot, oil, dirt and broken skin, which all come off during the next few days. This produces a gentle, delayed, nontraumatizing cleansing.

However, conventional débridement can be done before application of the wax if desired, but many victims of burns from Pearl Harbor, the South Pacific and the Boston fire, who of necessity received no elaborate débridement, showed splendid results. It is difficult to justify the rupturing of any bleb during the first few days, since bleb contents are practically identical chemically with blood plasma. When conservation of this plasma is desired, why should a clean closed wound be converted to an open one and thus more fluid loss be allowed?

Following the immediate treatment of a burn, the control of external or surface infections is the next important problem. The paraffin wax prevents the

Fig. 2.—The wax spray is applied in a thin layer while the freshly showered area is still moist. The tiny globules of the wax spray adhere to the healing cells and push the water aside.

formation of sealing-in crusts, and since it cracks easily it provides excellent continuous drainage, a fundamental factor in the control of any infection. External infections usually become dangerous only if they are sealed in by crusts or leather-like eschars.

In minimizing contamination from without, the recent work by Dr. O. H. Robertson of Chicago shows the worth of propylene glycol as a germicidal vapor to

Fig. 3.—A flash burn from a bomb destroyed full thickness of the skin over several areas. Function is maintained while the slough is separating.

sterilize the air in a room. Commander A. P. Krueger corroborates this work.

It is important to keep the floors and furniture clean. Moist sawdust is helpful in sweeping the floors. Protection of the fresh open wound against the organisms harbored by the nose and throat of attendants can be controlled by masking.

Because many of the bacteria come from the hair follicles and sweat glands, most burns are considered to be infected after twelve hours. Countless antiseptics, coagulants and tanning agents have been used in an attempt to sterilize the skin without destroying delicate

Fig. 4.—Early passive, then active, motion prevents most atrophy, fixed joints and contractures.

tissue cells. Although this is desirable, it is practically impossible. However, when the paraffin wax spray is used, the burn can be sprayed as often as necessary for the first few days and then once daily or oftener if necessary for comfort. The collected perspiration, exudate and toxic materials are flushed off by tap water in one of the three following ways, depending of course on the patient's condition:

1. A flower spray or irrigating spray if the patient is confined to his bunk.
2. A hand bath spray while the patient is seated on a chair in a bathtub.
3. Under any ordinary shower if the patient is ambulatory.

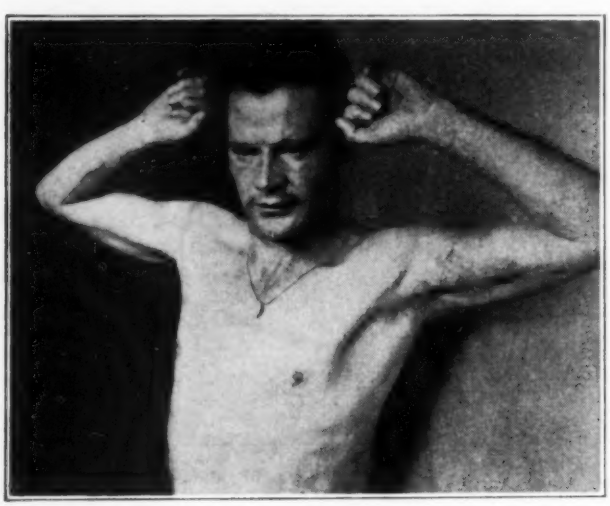

Fig. 5.—Axillary contractures can be prevented by early motion. Frequently actual overhead traction is used. This patient had a severe flash burn. Five pounds extension was applied after four weeks. There was no contracture.

Tub baths are not permitted, as contamination of relatively clean areas can be caused by bacteria from regions like the anus. The paraffin wax is particularly efficacious on easily constricted areas like the arms and legs, or areas difficult to bandage such as the genitalia, eyes, ears and nares.

Many classifications of burns are given, but it is believed that the depth of corium involvement is more important than the surface area involved. It seems more rational to speak of only two classes of burns, namely whether there is full thickness destruction of skin or not. The undamaged sweat and sebaceous glands, together with the hair follicles, supply the tiny islands of epithelium from which the wounds heal when the full thickness of skin is not destroyed.

If these as well as all injured and healing cells are preserved throughout treatment, there will be better scars and quicker healing. Early motion and a pliable skin surface will minimize contractures and disfiguring adhesions. Most victims of burns with large areas of "full thickness" destruction of skin probably do not survive.

It is problematic whether any formula speeds healing. The first great advance that must be taken in any treatment of burns is to give the undamaged cells a chance to heal without interference of traumatizing, cleansing or tanning agents, chemical irritants or even fine gauze and frequent dressings. The paraffin wax in the formula is an effective substitute for gauze. Ordinary

Fig. 6.—The patient's right palm was burned by hot pitch. He was urged to keep up the muscle tone of the forearm and let the burn heal under the wax spray.

ointments have less viscosity when placed on warm skin and either run off the area if uncovered or are absorbed into the gauze if covered. The higher melting point of the paraffin mixture keeps the areas covered.

The real problem is to preserve as much of the "partial thickness" burned skin as possible. These constitute most of the burn areas. All "full thickness" areas must have skin grafted on them. As soon as the slough has separated, the area should be frosted with sulfanilamide powder and then covered with a heavy coat of wax spray. Over this are placed several layers of gauze, and then a pressure bandage is applied.

This is done only in preparation for skin grafting or if desired when a patient is to be evacuated to another station. The wax separates easily and is still on the gauze surface and not absorbed into its mesh as ointments are. When the dressing is removed the area is smooth.

The type of skin graft to be employed is determined by the area involved as well as by the preference of the surgeon. The Paget dermatome offers the best method in most instances.

A first aid wax ointment can be made by reducing the amount of paraffin in the formula presented to 20

Gm. This is spread on waxed paper or cellophane and then applied to the burn or even directly to the burn area in extreme emergencies. The first aid ointment is sometimes incorporated into gauze strips to facilitate application. The paraffin increases the viscosity, which

Fig. 7.—Even thin clothing will protect the skin from intense heat if the duration of the flash is not too long.

is an advantage in hot climates. Paraffin also protects the area from gauze.

Military necessity frequently makes hurried evacuations imperative. The spray is sometimes covered by waxed paper or cellophane and may even be held in place by a pressure gauze bandage until the new station is reached. Men may carry a spray gun with them to be used at the new station.

CONCLUSION

Any universally accepted technic of treatment of burns should embody the following principles:

1. It should be simple and inexpensive enough to be available at many stations.

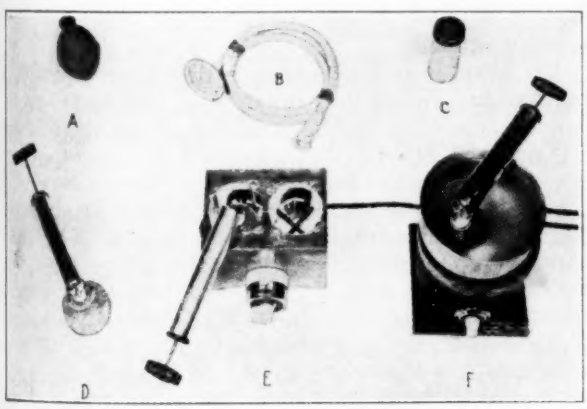

Fig. 8.—*A*, a flower spray; *B*, a hand bath spray; *C*, sulfanilamide powder to be frosted on moist infected areas under the paraffin wax film; *D*, an ordinary insecticide gun; a tiny hole in the top releases trapped expanding air and improves its function. *E*, an electric globe heater to be used in lieu of boiling water aboard ship; *F*, an ordinary water bath.

2. It should be available to and susceptible of being used by untrained persons.

3. It should be complete in itself and not require gauze, as experience shows that sterile gauze is not always available at the place where the patient is burned.

4. It should be applicable to any part of the body, whether the burned area is on the face, scalp, neck, genitalia, hands or easily constricted areas like the arms and legs or around the eyes, ears, lips and nares.

5. It should be applicable to any type of burn, whether due to flash or fire or to scalding with water or oil.

6. It should be inexpensive.

7. It should stop pain instantly and provide comfort throughout healing.

8. It should keep almost indefinitely.

9. It should allow early free motion to prevent contractures. Increased muscle action will aid morale and increase the appetite.

10. It should allow frequent inspection of all areas by a surgeon or physician at all times without the necessity of removing elaborate dressings.

11. It should prepare areas for early, necessary skin grafting.

12. It should be as effective on old infected burns as it is on fresh ones.

13. It should reduce dressing time by at least 90 per cent over present methods and do so painlessly.

14. It should permit the continuous escape of toxic exudates.

15. It should permit the washing away of odors, perspiration and noxious substances by frequent water sprays or showers.

The use of paraffin wax technic, as described, has for more than twenty years demonstrated its value in meeting these requirements.

RED CELL TRANSFUSIONS IN THE TREATMENT OF ANEMIA

A PRELIMINARY REPORT

HOWARD L. ALT, M.D.

CHICAGO

The extensive use of human plasma in recent years has made available large quantities of red blood cells. These for the most part have been discarded. Interest in the use of red cells for transfusion purposes has arisen in England during the last few years. MacQuaide and Mollison,[1] Williams and Davie [2] and Watson [3] all have used concentrated erythrocyte suspensions successfully for the treatment of anemia. In this country Warren Cooksey [4] has given numerous transfusions of red cells suspended in saline solution. He has been responsible for the increasing interest and use of such transfusions by physicians in the Detroit area.

Red cells were used for transfusion purposes by Robertson [5] during the first world war and by Castellanos and Riera [6] in 1937.

In 1938 I gave a transfusion of washed red cells to a patient with subacute leukemia who suffered reactions from whole blood. The same type of reaction occurred with the washed cells. In March 1942 a suspension of red cells was given to a patient with leukemia for the same reason and again failed to obviate the reaction.

Dr. Sidney O. Levinson gave the author helpful suggestions and continued cooperation in this work.

From the Department of Medicine, Northwestern University Medical School, and from the Passavant Memorial Hospital.

Read before the Chicago Society of Internal Medicine, Feb. 22, 1943; abstr. Proc. Inst. of Med., Chicago **14**: 404-405 (April 15) 1943.

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6. Castellanos, Agustin, and Riera, Ricardo: Sobre la transfusion de globulos y la transfusion de plasma; sus tecnicas e indicaciones, Bol. Soc. cubana de pediat. **9**: 234-270 (June) 1937.

Because of the nature of the leukemia suffered by the latter patient, his condition seemed ideal for the long continued use of red cell transfusions.

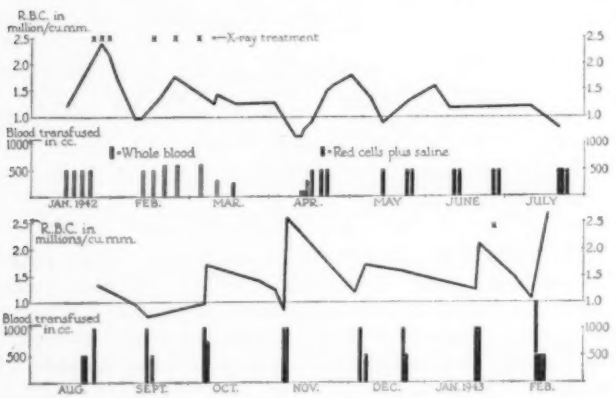
REPORT OF CASE

A man aged 45, first seen in January 1942, had noticed progressive pallor, weakness and dyspnea on exertion for three to four months. Physical examination revealed severe adenopathy of the cervical, axillary and inguinal lymph glands. Superficial tumor masses, undoubtedly lymphoid in nature, were palpable in the abdomen. The liver was palpable 3 finger-breadths below the costal margin, and the tip of the spleen was just palpable on inspiration.

Examination of the blood revealed red blood cells 1,200,000 per cubic millimeter, hemoglobin 3.5 Gm. per hundred cubic centimeters, white blood cells 42,000; neutrophils: band cells 2 per cent, segmented cells 2 per cent, eosinophils 2 per cent, basophils 1 per cent, lymphocytes (mature) 87 per cent, monocytes 2 per cent, degenerated cells 4 per cent; platelets 267,000 per cubic millimeter.

The sternal marrow showed blasts 4 per cent, lymphocytes (mature) 80 per cent, promyelocytes 1 per cent, neutrophils: myelocytes 1 per cent, metamyelocytes 3 per cent, band cells 8 per cent, segmented cells 2 per cent. No normoblasts were seen.

The picture is that of chronic lymphatic leukemia except for pronounced erythropoietic depression. A record of the blood



Graphic representation of erythrocyte counts and red cell transfusions in patient with leukemia.

counts over a period of several months showed that the anemia was of a progressive nature. X-ray therapy caused a decided shrinking of the lymph glands but failed to stimulate erythropoiesis.

A summary of the red cell transfusions given the patient is represented in the graph. The routine procedure was to replace the plasma withdrawn from the donated whole blood with an equal amount of isotonic solution of sodium chloride. Thus the cubic centimeters of red cells plus the saline solution, designated hereafter as red cell suspensions, are volumetrically equivalent to the same amount of whole blood. The transfusion of 1,000 cc. of red cell suspension consisted of the pooled cells from 2 compatible donors of the same blood group.

It can be seen in the graph that the patient required the red cells from 2 liters of blood about once a month to maintain an average erythrocyte count of 1.5 million per cubic millimeter. After the administration of 2 liters of red cell suspension over a period of two days the red blood cell count increased by 1 to 1.5 million cells per cubic millimeter. After about four weeks there was a decline of the count to the range of 1 million and this was accompanied by palpitation, pounding in the head and dyspnea, all on slight exertion. If blood was not given in time, the count would go down to 0.6-0.8 million, and fever, vomiting and drowsiness would occur. These symptoms promptly subsided after a red cell transfusion. Although febrile reactions accompanied about three fourths of the red cell transfusions, hemolysis did not occur and the counts increased to the same extent as when reactions were not present.

The patient is just about as well at the present time (April 1943) as he was over a year ago and is able to lead a moderately active life. The white blood cell count averages 5,000 to 10,000 per cubic millimeter, of which 70 to 80 per cent are mature lymphocytes, and the platelets average 125,000 per cubic millimeter. In December 1942 the serum proteins were: total protein 5.11 Gm., albumin 3.88 Gm., globulin 1.23 Gm. per hundred cubic centimeters. Including transfusions given in March and April 1943 (not recorded in the graph) he has received a total of thirty-seven individual red cell transfusions, which total to an equivalent of 25.5 liters of blood. It appears that the erythrocyte level was almost if not entirely sustained by the injected red cells, and if this is true it can be estimated that the cells survived for an average period of at least thirty days.

Smaller series of red cell transfusions have been given to a number of patients with various types of anemia. Six red cell transfusions were given to a man aged 64 with an aplastic anemia. His blood type was B. He had symptoms of cardiac insufficiency when his blood level was low. On one occasion he received 1,500 cc. of red cell suspension,[7] type O, over a period of three and one-half hours. This caused no reaction or cardiac embarrassment during or after the transfusion.

From the results obtained, it seems that red cell transfusions are as effective as whole blood transfusions in raising the red count in patients with anemia. The survival period of the injected cells is also about what might be expected with whole blood. As to reactions, insufficient data are available to make accurate comparisons. I concur with others[8] who state that the percentage of reactions with red cell suspensions are as low as with whole blood or lower.

PROCEDURE

The red cells used in this series were furnished through Dr. S. O. Levinson of the Samuel Deutsch Convalescent Serum Center of Michael Reese Hospital. Prospective donors previous to the transfusion have a Kahn test and their blood typed. Five hundred cc. of blood is drawn into a centrifuge bottle containing 50 cc. of 4 per cent sodium citrate solution and is centrifuged at 1,300 revolutions a minute for twenty-five minutes. After the plasma is pipetted off and placed on sterility test, the bottle with cells is sealed. A pilot tube of blood is fastened to the outside of the bottle for subsequent matching.

The blood from 2 donors is usually given at a single transfusion. Either the same type as that of the recipient or type O is used. The cells from each bottle are matched against the recipient's serum to insure against an agglutination reaction. Then 250 cc. of isotonic solution of sodium chloride from a liter Baxter flask is poured gently into each bottle of cells and the remaining saline solution discarded. After gently rotating the cell suspensions in saline solution, each is poured back into the liter flask through a funnel containing several layers of gauze. Needless to say, sterile precautions should be observed throughout. A regular transfusion outfit including a metal mesh filter and dropper is attached to the Baxter flask of cells and it is then ready for use. An hour is allowed for each 500 cc. of red cell suspension to run into the recipient; a shorter period would probably be safe in most cases.

Because it was desirable to have a maximum survival period of the transfused red cells in the patient with leukemia, only cells were used that had been drawn

7. Pooled cells from 3 donors.
8. MacQuaide and Mollison.[1] Watson.[3] Cooksey.[4]

within three days or less. In these suspensions there was no hemolysis either before or after the addition of saline solution. For patients with a more temporary type of anemia the cells can be stored for five to seven days before being used. It has been shown that the survival time of transfused erythrocytes in stored whole blood decreases rapidly after a storage period of more than seven days.[9]

The English workers [10] have used red cell suspensions in a more or less concentrated form, i. e. with little or no addition of aqueous solutions. This is definitely advantageous for patients with cardiac insufficiency and anemia. It would also make possible the transfusion of larger amounts of cells over a short period of time. In the present work, saline solution has been added to decrease the viscosity of the blood and consequently to facilitate the flow through the transfusion system. It would be just as well to add only 100 or 150 cc. of saline solution to the cells from 500 cc. of blood or to omit the saline solution entirely.[11]

COMMENT

The main value of red cell transfusions is to increase the erythrocyte count in patients with anemia. After severe hemorrhage, spontaneous recovery of the anemia takes about six weeks or longer. In such a case the daily administration of red cells from a liter of blood will bring the erythrocyte count to normal within a few days. If cells could be made available to the armed forces, it would materially hasten the rehabilitation of wounded men who have suffered from hemorrhage. In patients with severe iron deficiency, the hemoglobin value can be raised rapidly with red cell transfusions. During the gradual destruction of the transfused cells, iron is released for further hemoglobin formation. Red cell transfusions are also effective in other types of anemia. Their use in progressive refractory anemia has already been emphasized.

The chief advantage of transfusions with red cell suspensions over whole blood is the factor of economy. With the widespread use of plasma, great quantities of red cells will continue to be a by-product. Should red cell transfusions come into common use, it will be possible to divide the cost of whole blood between the plasma and the cells. If and when red cell suspensions become generally available at a low cost, it is rational that they should be used in larger amounts and more frequently in the treatment of anemia than whole blood is used at the present time.

SUMMARY

Red cell transfusions are a satisfactory substitute for whole blood transfusions in the treatment of anemia. A patient with progressive refractory anemia has been sustained for a year with transfusions of the red cell suspensions obtained from 25.5 liters of blood. Because red cells are a by-product in the preparation of blood plasma, it is practical to give them in larger amounts and more frequently than heretofore has been the practice with whole blood.

9. Wiener, A. S., and Schaefer, George: Limitations in the Use of Preserved Blood for Transfusions: A Study of the Fate of the Transfused Erythrocytes in the Recipient's Circulation, M. Clin. North America **24:** 705-722 (May) 1940.

10. MacQuaide and Mollison.[1] Williams and Davie.[2] Watson.[3]

11. Since the manuscript was written, the routine procedure has been modified. The common vacuum bottle (Baxter transfuso-vac) used for drawing blood from donors has been prepared containing 100 cc. of isotonic solution of sodium chloride. Red cells from two compatible donors of the same blood group are drawn into the vacuum bottle through a metal mesh filter. This more concentrated red cell suspension flows freely through the regular transfusion system.

RADIOPAQUE MEMBRANOUS PYELITIS FOLLOWING SULFONAMIDE THERAPY

PAYSON ADAMS, M.D.
OMAHA

Clinical and experimental reports of renal complications following the use of the sulfonamide drugs suggest their danger and the importance of meticulous clinical observation and control of the patient receiving these drugs. Sulfapyridine, sulfathiazole and, more recently and to a lesser extent, sulfadiazine are more prone to cause renal damage than is sulfanilamide. These individual differences among the sulfonamide compounds can be explained partly by their respective known pharmacologic and chemical behavior. The slow absorption and relatively slow excretion and high solubility of sulfanilamide explain the infrequent occurrence of renal damage from this compound, whereas the very rapid absorption and excretion with resultant high concentration of the less soluble sulfapyridine and sulfathiazole in urine explain their relatively frequent production of renal complications. The acetylated forms of sulfapyridine and sulfathiazole are even less soluble than the free form. Long, Bliss and Feinstone [1] reported the total absence of any renal irritation in 408 patients treated with sulfanilamide. Marshall, Cutting and Emerson [2] state that a temporary decrease in renal function is observed after administration of large doses of sulfanilamide but that no permanent kidney injury appears to result. No reports of sulfanilamide anuria have appeared in the literature.

Sulfapyridine has been replaced largely by sulfathiazole because of the frequent renal damage caused by the former and the relatively lower toxicity and higher therapeutic efficiency of the latter. Many reports of renal complications with sulfathiazole have appeared recently, however. In experimental work the amount of renal impairment and damage due to sulfathiazole varies with the dose and the type of animal used. Rake, van Dyke and Corwin [3] showed that mice dying of overdoses of sulfathiazole had crystals in the urinary tract from the proximal convoluted tubules to the urethra, and half of the animals had definite concretions in the pelves or ureters. In addition, Bowman's capsule was dilated and occasionally filled with blood. The renal tubules were also dilated, were filled with crystals and showed definite peritubular leukocytosis and occasionally tubular necrosis. Rats and monkeys had less renal injury from sulfathiazole, probably because of the rapid rate of metabolism of the drug in these animals. Gross, Cooper and Scott [4] reported the formation of sulfathiazole crystals in the distal collecting tubules of rats' kidneys after administration of the drug. Reinhold, Flippin and Schwartz [5] observed that sulfathiazole is not as readily reabsorbed from the kidney tubules as are sulfapyridine and sulfanilamide.

1. Long, Perrin H.; Bliss, Eleanor A., and Feinstone, W. Harry: Mode of Action, Clinical Use and Toxic Manifestations of Sulfanilamide, J. A. M. A. **112:** 115-121 (Jan. 14) 1939.

2. Marshall, E. K., Jr.; Cutting, W. C., and Emerson, Kendall, Jr.: The Toxicity of Sulfanilamide, J. A. M. A. **110:** 252-257 (Jan. 22) 1938.

3. Rake, Geoffrey; van Dyke, H. B., and Corwin, W. C.: Pathologic Changes Following Prolonged Administration of Sulfathiazole and Sulfapyridine, Am. J. M. Sc. **200:** 353-362 (Sept.) 1940.

4. Gross, Paul; Cooper, F. B., and Scott, Ruth E.: Urolithiasis Medicamentosa, Urol. & Cutan. Rev. **44:** 205-209 (April) 1940.

5. Reinhold, J. G.; Flippin, H. F., and Schwartz, Leon: Observations of the Pharmacology and Toxicology of Sulfathiazole in Man, Am. J. M. Sc. **199:** 393-401 (March) 1940.

Pepper and Horack [6] reported the first instance of crystalline sulfathiazole concretions in the renal tubules of a patient treated for pneumonia with sulfathiazole. Shortly after this, Loewenberg, Sloane and Chodoff [7] reported 1 case of sulfathiazole urinary calculi appearing in the kidneys, ureters and bladder. From pathologic and clinical observations in 4 cases in which death occurred during sulfathiazole therapy, Lederer and Rosenblatt [8] reported that the significant pathologic lesion was similar to that more recently noted by Merkel and Crawford,[9] consisting of multiple areas of focal necrosis in the liver, spleen, bone marrow, lymph nodes and lungs as well as the kidneys. Winsor and Burch [10] reported 6 cases of severe renal involvement from sulfathiazole with three deaths. The autopsy material showed sulfathiazole crystals within the renal tubules; the tubules were dilated and showed signs of degeneration. Other signs of sulfathiazole damage to the kidney similar to that described by Antopol and Robinson [11] were present. Lindner and Atcheson [12] reported 2 cases of complete anuria and death following sulfathiazole therapy. In addition to striking parenchymal changes, the kidneys showed the accumulation of great clumps of crystals in the tubules and calices in 1 case and of crumbly, brownish, crystalline material within the pelves and ureters in the other. In no instance, however, has a radiopaque calculus or pelvic calical membrane been reported as forming directly or indirectly from sulfathiazole.

According to earlier records, sulfadiazine was more potent, less toxic and less likely to precipitate in the urine and therefore less apt to cause renal complications than any of the other sulfonamide drugs. However, many reports have since appeared of severe renal damage due to the newest of the sulfonamides. Lehr and Antopol [13] reported renal lesions caused by sulfadiazine in rats and interpreted their significance. Gross, Cooper and Hagen [14] postulated that because urolithiasis occurred in rats given sulfadiazine this complication would occur also in man. They concluded that crystal deposition took place almost exclusively within the renal tubules and commented on the absence of hematuria because of the fan shaped, rounded contour of the crystals and also on the absence of tissue trauma because of imprisonment of the crystals within the tubular structures. Other authors, including Plummer,[15] Flippin and his co-workers [16] and Finland and his associates,[17] reported the incidence of hematuria as small. Thompson, Herrell and Brown [18] noted a case of anuria after sulfadiazine therapy. Hughes, Sayen and La Towsky [19] reported a case in which actual urinary calculi recovered from the urine were composed entirely of sulfadiazine. These calculi varied from 1 to 3 mm. in diameter. Bradford and Shaffer [20] reported a death due to sulfadiazine in which the renal changes were similar to those reported in experiments on animals by Antopol and his associates.[21] An accumulation of precipitated, noncrystalline, free drug was demonstrated within the urinary tract. Following prolonged sulfonamide administration, the resulting uroliths were composed of acetylated drug and the authors used the term "calcifying nephrosis" to describe the reaction in the tissues adjacent to the drug deposits. Special staining demonstrated calcium deposition not only in the zone adjacent to the tubules but also within the lumen. Intense inflammatory changes and extensive necrosis occurred in tissue surrounding the drug deposit when the accumulations were not removed by irrigation within twenty-four hours. Apparently no roentgenograms were available to determine the possible radiopaque nature of this calcareous deposit about and within the renal tubules. Schulte, Shidler and Niebauer [22] reported a case of death from anuria due to sulfadiazine; Raines [23] reported an instance of ureteral obstruction and death following the use of sulfadiazine, and Hellwig and Reed [24] reported a case of anuria in which death occurred following sulfadiazine therapy. Keitzer and Campbell [25] reported 11 cases of renal suppression following sulfadiazine therapy, in 4 of which cystoscopy and ureteral catherization were required.

For the most part, authors have indicated that sulfathiazole and sulfadiazine crystals precipitated within the renal pelvis and calices are highly soluble and will dissolve readily either under renal pelvic lavage with sterile distilled water through a ureteral catheter or spontaneously if the drug is discontinued and fluids are forced. Crystals precipitated within the renal tubules are not amenable to such therapy. Although there have been no reports of large, conglomerate, putty-like calculi forming within the renal pelvis and calices during sulfathiazole or sulfadiazine therapy, such an occurrence following sulfapyridine therapy was recorded recently by Newman and Shleser.[26] In their case the earthy, crumbly, conglomerate mass was removed surgically two years after the sulfapyridine had been administered. That a similar situation may occur during or after sulfadiazine or sulfathiazole therapy when certain precipitating factors such as high urinary concentration and partial or complete ureteral obstruction are present is suggested by the 2 cases here reported.

6. Pepper, D. S., and Horack, H. M.: Crystalline Concretions in the Renal Tubules Following Sulfathiazole Therapy, Am. J. M. Sc. **199:** 674-679 (May) 1940.
7. Loewenberg, S. A.; Sloane, N. G., and Chodoff, Paul: Sulfathiazole Urinary Calculi in the Kidneys, Ureters and Bladder in the Absence of Marked Urinary Changes Following Sulfathiazole Therapy, J. A. M. A. **115:** 2069-2071 (Dec. 14) 1940.
8. Lederer, Max, and Rosenblatt, Philip: Death During Sulfathiazole Therapy, J. A. M. A. **119:** 8-18 (May 2) 1942.
9. Merkel, Walter C., and Crawford, Robert C.: Pathologic Lesions Produced by Sulfathiazole, J. A. M. A. **119:** 770-776 (July 4) 1942.
10. Winsor, Travis, and Burch, George: Renal Complications Following Sulfathiazole Therapy, J. A. M. A. **118:** 1346-1353 (April 18) 1942.
11. Antopol, William, and Robinson, Harry: Pathologic and Histologic Changes Following Oral Administration of Sulfapyridine, Arch. Path. **29:** 67-76 (Jan.) 1940.
12. Lindner, Henry J., and Atcheson, Donald W.: Sulfathiazole Crystallization in the Kidney, J. Urol. **47:** 262-266 (March) 1942.
13. Lehr, David, and Antopol, William: Toxicity of Sulfadiazine and Acetylsulfadiazine in Albino Rats with Special Reference to Renal Lesions and Their Significance, Urol. & Cutan. Rev. **45:** 545-554 (Sept.) 1941.
14. Gross, Paul; Cooper, F. B., and Hagen, M. L.: Urolithiasis Medicamentosa Caused by Sulfadiazine, Am. J. Clin. Path. **2:** 882-890 (Dec.) 1941.
15. Plummer, Norman: Conference on Therapy, New York State J. Med. **42:** 259-265 (Feb.) 1942.
16. Flippin, H. F.; Rose, S. B.; Schwartz, Leon, and Domm, A. H.: Sulfadiazine and Sulfathiazole in Treatment of Pneumococcic Pneumonia: Progress Report on 200 Cases, Am. J. M. Sc. **201:** 585 (April) 1941.
17. Finland, Maxwell; Strauss, Elias, and Peterson, O. L.: Sulfadiazine: Therapeutic Evaluation and Toxic Effects on 446 Patients, J. A. M. A. **116:** 2641 (June) 1941.
18. Thompson, G. J.; Herrell, W. E., and Brown, A. E.: Anuria After Sulfadiazine Therapy, Proc. Staff Meet., Mayo Clin. **16:** 609-612 (Sept. 24) 1941.
19. Hughes, P. B.; Sayen, J. J., and La Towsky, L. W.: Sulfadiazine Calculi in the Urinary Tract, J. Urol. **47:** 274 (March) 1942.
20. Bradford, H. A., and Shaffer, J. H.: Renal Changes in a Case of Sulfadiazine Anuria, J. A. M. A. **119:** 316-318 (May) 1942.
21. Antopol, William; Lehr, David; Churg, Jacob, and Sprinz, Helmuth: Changes in the Urinary Tract and Other Organs After the Administration of Three Sulfanilamide Derivatives, Arch. Path. **31:** 592-602 (May) 1941.
22. Schulte, J. W.; Shidler, F. P., and Niebauer, J. J.: Acute Urinary Suppression Following Sulfadiazine Therapy, J. A. M. A. **119:** 411-412 (May 30) 1942.
23. Raines, Samuel L.: Ureteral Obstruction Following the Use of Sulfadiazine, J. A. M. A. **119:** 496-497 (June 6) 1942.
24. Hellwig, C. Alexander, and Reed, H. Lester: Fatal Anuria Following Sulfadiazine Therapy, J. A. M. A. **119:** 561-562 (June 13) 1942.
25. Keitzer, Walter A., and Campbell, John A.: Renal Complications of Sulfadiazine, J. A. M. A. **119:** 701-703 (June 27) 1942.
26. Newman, H. R., and Shleser, I. H.: Sulfonamide Renal Calculus Surgically Removed Two Years After Administration of Sulfapyridine, J. Urol. **47:** 258-261 (March) 1942.

REPORT OF CASES

CASE 1.—R. C. S., a man aged 48, entered the Methodist Hospital on Feb. 1, 1942. A small calculus 4 mm. in diameter was demonstrated in the lower portion of the right ureter which produced mild ureterectasis and pyelectasis. A ureteral catheter was manipulated past the calculus with difficulty and after 10 cc. of dark concentrated urine was aspirated from the right kidney pelvis the patient was relieved of pain in the right flank. Sulfathiazole was given in doses of 60 grains (4 Gm.) daily during the next three days. It was discontinued the fourth day because of nausea and resumed the following day in 30 grain (2 Gm.) daily doses until February 12, when cutaneous manifestations and fever developed. These apparently were due to drug sensitivity or idiosyncrasy, because the fever and rash promptly subsided after the drug was discontinued. The total dosage of sulfathiazole over the eleven day period was 31 Gm. On the last day of drug administration the blood sulfathiazole level was 3.7 mg. per hundred cubic centimeters and the nonprotein nitrogen was 31 mg. per hundred cubic centimeters. Adequate fluid intake and output were maintained during this period.

On February 9 ureteral instrumentation was again carried out. A ureteral catheter was introduced easily past the calculus to the right renal pelvis, and 35 cc. of dark brownish urine aspirated from the renal pelvis showed 10 to 12 pus cells and 75 to 100 red blood cells per high power field in the uncentrifuged specimen. Sulfathiazole crystals were not seen. Roentgenograms showed no shadow to indicate calculus other than that in the lower portion of the right ureter. The retention ureteral catheter failed to drain adequately owing to the thick consistency of the urine, and therefore it was removed a few hours after insertion, 2 cc. of sterile liquid petrolatum being injected as the catheter was withdrawn. The patient left the hospital on February 16.

During the next two weeks the patient continued to have dull aching pain in the right flank and intermittent fever. On February 28 a right ureteral catheter was passed easily to the right renal pelvis and the irrigating fluid returned clear. The renal pelvis was irrigated with 1 per cent silver nitrate solution and the catheter was removed. Roentgenograms showed no calculi either in the ureter or in the renal pelvis, although the patient was not conscious of having passed a stone.

During the next month the patient had intermittent fever, uncontrolled gross pyuria, general evidence of sepsis and dull aching pain in the right flank. On numerous occasions the urine was noted by the patient to contain dirty gray shreds and particles. On March 9 the patient brought in a specimen of urine containing a piece of dirty gray membranous material measuring 4 mm. in diameter and 3 inches (7.5 cm.) in length.

An excretory urogram on March 23 demonstrated moderate impairment of function of the right kidney and numerous calcareous shadows measuring from 5 to 10 mm. in diameter, located within moderately dilated right renal calices.

Removal of the calculi by nephrotomy or pyelotomy seemed advisable, and operation was carried out on March 27. Moderate perinephric and periureteral inflammation was encountered. When the renal pelvis was opened, several ounces of foul smelling but fairly clear urine was released and digital exploration of the calices and pelvis failed to locate any calculi. Because of the severe inflammatory reaction in the renal parenchyma and pelvis, nephrectomy was done.

The kidney was inspected minutely and no calculi were found. The pelvis and calices were partially covered by an adherent dirty gray membrane resembling the material recovered from the urine two weeks before. Some of this membrane was stripped from the walls of the calices. It felt gritty, and under the fluoroscope it cast a definite shadow. No crystals were seen in scrapings of this membrane. Pathologic examination by Dr. C. P. Baker revealed that the right kidney weighed 145 Gm. The capsule was firmly adherent. In the cortex and running into the medulla were yellow gray areas measuring 1.4 cm. These were found in both poles of the kidney. The pelvic mucous membrane and that of the calices was thickened. In some of the calices there was calcareous inspissated material. Sections showed noticeable polymorphonuclear leukocyte collections in the medulla and cortex. The diagnosis was severe pyelonephritis with calcareous inspissated material.

The patient left the hospital on the fourteenth postoperative day and has remained well during the fourteen months since operation.

During the eleven day interval of sulfathiazole therapy, 31 Gm. of the drug was administered, the fluid intake and output were adequate and no sodium bicarbonate was given. The nonprotein nitrogen did not rise and the blood sulfathiazole level at the end of this period was only 3.7 mg. per hundred cubic centimeters. The fact that his fever promptly subsided after the drug was discontinued suggests a drug idiosyncrasy or sensitization. No renal shadows were seen until approximately six weeks after the drug was discontinued. While there is no definite proof that sulfathiazole was

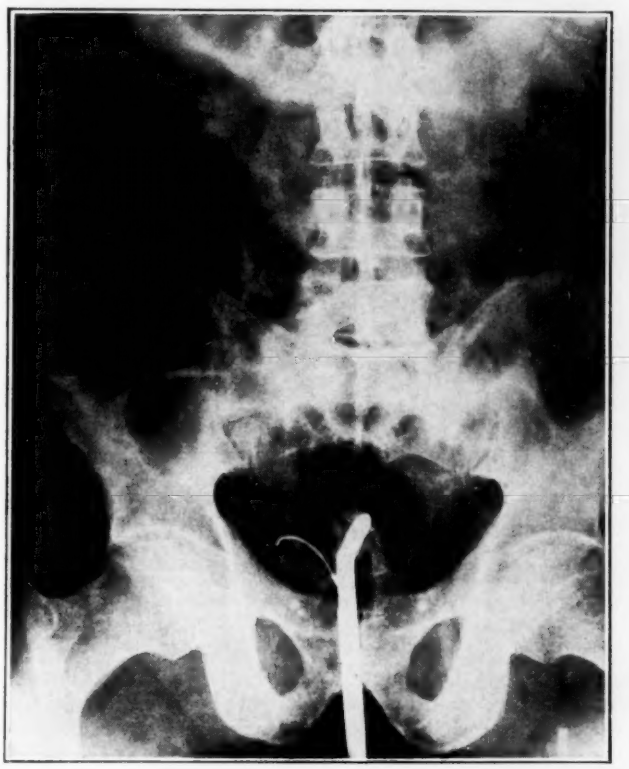


Fig. 1 (case 2).—Appearance on May 6, 1942, showing a shadow 5 mm. in diameter interpreted as a ureteral calculus in contact with the ureteral catheter that has been passed slightly beyond it. Note particularly that there is no evidence of right renal calculus.

the primary cause of the formation of the radiopaque membrane within the renal pelvis and calices, I find no record of such a complication of ureteral calculus reported before the sulfonamides were available. Gross renal infection and unilateral urinary stasis were probably contributing factors but may have been major factors in the cause of this lesion. The decision to remove what were thought to be putty-like calculi from the renal pelvis and calices by operation seemed logical. It is quite possible, however, that this membranous material might have passed spontaneously, as in case 2, although in this instance nephrectomy was desirable because of the gravity and extent of the associated pyelonephritis.

CASE 2.—E. B., a man aged 63, an accountant, was admitted to the Methodist Hospital on April 29, 1942 with right renal colic of twenty-four hours' duration. An excretory urogram

on April 30 showed a right ureteral calculus 5 mm. in diameter located 10 cm. above the ureterovesical junction. The portion of ureter above the calculus, the renal pelvis and the calices were slightly dilated. Each kidney had good function. One ureteral catheter was passed by the calculus on May 1 but was removed after forty-eight hours because it drained poorly

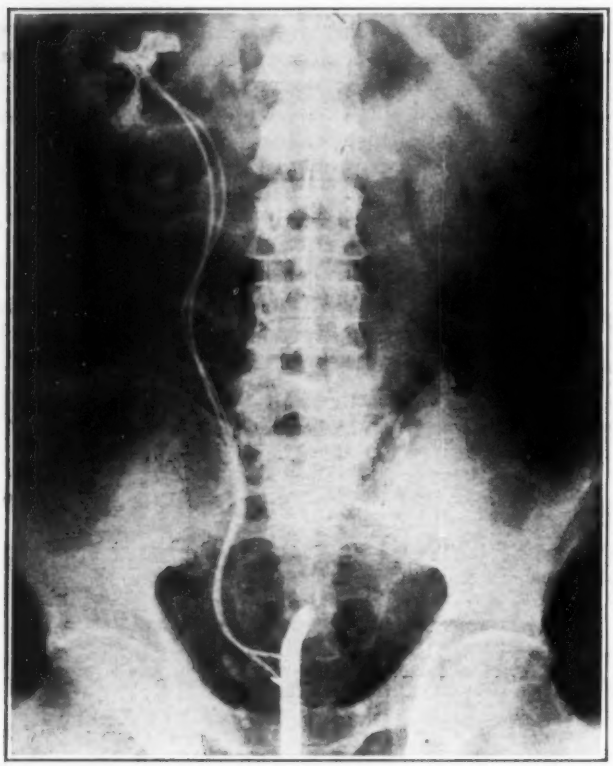


Fig. 2 (case 2).—Appearance one week after that shown in figure 1 showing two right ureteral catheters. No pyelographic material has been injected. What at first appears to be a staghorn calculus filling the pelvis and calices is in reality a radiopaque membrane lining the mucosa in this area. Note the variation in density, strongly suggesting the membranous nature, and note too that the catheters extend beyond the medial border of the shadow. Repeated irrigations with sterile water failed to effect any change in the appearance of this shadow.

in spite of frequent irrigations with sterile water. During a period of four days, starting May 1, 11 Gm. of sulfathiazole was given and oral fluids were forced. Because of diminished urinary output, chills and fever occurring May 4 and 5, cystoscopy was repeated on May 6 and a catheter was introduced past the right ureteral calculus to the renal pelvis, where 5 cc. of dark, reddish, turbid urine was aspirated. By x-ray examination no shadows were noted in the renal or ureteral areas, with the exception of the small ureteral calculus previously noted (fig. 1).[27]

The ureteral catheter was left for continuous drainage and kept open by frequent irrigations with sterile water. During the four days that the catheter remained, the fluid intake was maintained by mouth and augmented by intravenous dextrose solution, and the urinary output was noticeably increased to a normal level. Sulfadiazine was started on May 6 and continued until May 12 in moderate divided daily doses. A total of 19 Gm. of the drug was given in the seven day period. The sulfadiazine blood level on May 12 was 5.2 mg. per hundred cubic centimeters. The nonprotein nitrogen blood level on May 9 was 39.4 mg. per hundred cubic centimeters and on May 12 it was 42.5 mg. Because of mounting nonprotein nitrogen, chills and fever, cystoscopy was repeated on May 13. After a right ureteral meatotomy was done, two No. 6 x-ray ureteral catheters were passed by the ureteral calculus to the renal pelvis, where 15 cc. of yellowish brown, grossly infected, turbid urine was aspirated. Roentgenograms taken at this time showed a calcareous membrane covering the entire surface of the mucosa of the upper and middle calices and upper part of the renal pelvis (fig. 2). This remained even after repeated renal pelvic lavage with sterile water. The two ureteral catheters were left for kidney drainage. Nearly continuous sterile water irrigation of the renal pelvis through the two ureteral catheters during the first twenty-four hours failed to show any appreciable change in the extent of the calcareous membrane. Sodium citrate-citric acid solution (sodium citrate 45.2 Gm., citric acid 38 Gm., distilled water 1,000 cc.) was used for irrigation during the next twenty-four hours, again without appreciable change in the radiographic appearance of the right renal calcareous shadow. The catheters were removed. The renal output had improved and the nonprotein nitrogen had come down to 33.8 mg. per hundred cubic centimeters on May 16. The blood sulfadiazine had come down to 0.7 mg. per hundred cubic centimeters on May 16. Cystoscopic examination on May 18 revealed a calculus 5 mm. in diameter in the bladder, which was removed. A right ureteral catheter passed through the wide open right ureteral meatus could be introduced only 20 cm. up the ureter, where it met an obstruction which was shown by x-ray examination to be due to masses of calcareous deposits in the upper part of the ureter. Other calcareous deposits were noted in the lower calices and at the ureteropelvic junction. The catheter was removed. During the following week the patient improved rapidly, he was free from pain and his temperature remained normal. He was dismissed from the hospital on May 25. Excretory urograms on May 23 showed the right kidney to have fair function and little hydronephrosis, and the calcareous deposits had nearly disappeared from the inferior calices, ureteropelvic junction and upper part of the ureter, although the shadow in the upper calices remained unchanged. The nonprotein nitrogen remained normal. The urine was grossly infected.

Fig. 3 (case 2).—Appearance of the membranous material recovered from the patient's voided urine on June 29, forty-seven days after it was first visualized. The membranous material is suspended in a bottle of water. Note that the density and contour resemble the shadow demonstrated in figure 2.

The patient returned to his work on June 12. On June 26 he had a sudden onset of right renal and ureteral pain. Cystoscopic introduction of a right ureteral catheter and aspiration of 40 cc. of dark gray, turbid urine from the right kidney pelvis gave the patient immediate relief. The renal pelvis was thoroughly irrigated with acriflavine solution and 1 per cent silver nitrate. Three days later he voided a large, dirty gray, membranous mass followed by a large amount of turbid gray urine. This material was placed in a bottle of sterile water and roentgenographed (fig. 3). Note that the membranous material resembles closely the shadows previously noted in the right renal pelvis in size, contour and configuration. On July 9, another x-ray examination (fig. 4) showed that the main radiopaque cast was absent from the right superior calix, although two small, partially calcified encrustations about 6 mm. in

27. Dr. H. B. Hunt made all the x-ray interpretations.

diameter persisted in the superior and middle calices and no calcareous deposits were evident in the ureter. On July 31 the urine was crystal clear and no pus cells were seen on microscopic examination. The patient is now symptom free.

Microscopic examination of the urine and scrapings from the membrane showed sulfadiazine crystals. The microscopic paraffin sections were not diagnostic and showed only amorphous material. The crystals had been dissolved in the process of making the sections. Chemical analysis of the membrane was not made.

Fig. 4 (case 2).—Check-up of the right renal area on July 9. Most of the radiopaque membranous material has separated and passed down the ureter.

No attempt to render the urine alkaline was made during the period of sulfonamide therapy. Sulfonamide drugs were given during the thirteen day period from May 1 to May 12, with the exception of one day (May 5). A total of only 11 Gm. of sulfathiazole was given in a five day period. Then sulfadiazine was given for seven days, the total dose being only 19 Gm., at the end of which time the sulfadiazine blood level reached only 5.2 mg. per hundred cubic centimeters. Sunderman, Pepper and Benditt [28] have shown that the acetyl derivative of sulfathiazole is only one tenth as soluble in urine as is the free form, and both are one half as soluble in urine of p_H 5.6 as that of p_H 7.6. This finding has been corroborated by Curtis and Sobin.[29] Since the urine in this case was persistently acid, with few exceptions, during sulfonamide therapy, alkalis should have been given. While the renal output was consistently below normal during the first six days of sulfonamide therapy, it was adequate during the remainder of the time. This does not necessarily indicate that the output was sufficient from the right kidney, and it must be assumed from the clinical course that drainage from the right kidney was definitely impaired until the calculus was passed on May 17. Certainly the partial or complete obstruction of the right ureter during this time would render the urine in the renal pelvis highly concentrated and this, associated with infection, would produce an ideal situation for a deposit of the acetyl and free forms of the sulfonamide drugs.

Sulfonamide compounds would seem contraindicated when ureteral obstruction exists.

The radiopaque, calcareous membrane formed very rapidly, for it was not present on May 6 (fig. 1), although perhaps a membranous deposit had already formed but had not become calcified and therefore was not demonstrable on x-ray examination. On May 13 the membrane was distinctly visible (fig. 2). It is probable that the sulfadiazine rather than the sulfathiazole was the cause because sulfadiazine crystals were noted in the urine and in the scrapings from the membrane.

That the sulfonamide compounds were not the major cause in the formation of the membrane is highly possible. Other factors, such as infection and obstruction, may have played a more important part, but I have never encountered a radiopaque membrane lining the pelvis above a ureteral calculus, nor have similar cases been reported by others prior to the sulfonamide era.

SUMMARY AND CONCLUSIONS

Two cases were observed in which a calcareous radiopaque membrane formed on the epithelial surfaces of the calices and renal pelvis of a kidney partially or completely blocked by a small ureteral calculus. Sulfathiazole in 1 instance and sulfadiazine in the other are thought to be at least partly responsible for this complication. Similar sulfonamide renal complications have not previously been reported. The membrane and kidney were available for study in 1 case and only the membrane, passed spontaneously, in the other.

Sulfathiazole and sulfadiazine may cause rapid formation of a nonsoluble, calcareous, radiopaque membrane on the epithelial surfaces of the calices and pelvis if there is an associated ureteral stasis, pyelonephritis and alkaline urine. Therefore these drugs should not be given indiscriminately in such cases but, if thought mandatory, every effort should be made to prevent the formation of such membranes by correcting ureteral stasis, maintaining renal drainage, improving the renal output and rendering the urine highly acid (p_H 5.6 or less).

Early operative removal of such membranes is not indicated, for it is quite impossible to remove this material early either by nephrotomy or pyelotomy, when separation from the pelvis and calices is difficult. Later such membranes may separate spontaneously and are then more easily removed, or they may pass without operation.

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The Per Capita Consumption of Sugar.—World production of raw sugar in 1939 was not far from 35 million tons. Of this nearly 22 million tons came from the sugar cane and considerably more than 12 million tons from the sugar beet. The United States and its island possessions produced about 5½ million tons. Louisiana and Florida are the leading cane sugar states; California and Colorado, the chief beet sugar states. In the United States the per capita consumption of sugar rose from about 40 pounds a year (raw value) in the decade 1870-1879 to 107 pounds in 1920-1929 but dropped back to 102 pounds for the period 1930-1939. In prewar years several other countries reported still higher consumption of sugar, but the figures are not available at present. The world average sugar consumption was reported to be 30½ pounds per capita for the season 1939-1940, i. e. for one year. The desirability of such a large consumption of sugar in the United States is doubtful. Sugar supplies about one sixth of the calory intake and hence displaces the consumption of less refined foods that would carry minerals and vitamins as well as energy.—Peterson, William H.; Skinner, John T., and Strong, Frank M.: Elements of Food Biochemistry, New York, Prentice-Hall, Inc., 1943.

CONTINUOUS CAUDAL ANESTHESIA IN THREE HUNDRED UNSELECTED OBSTETRIC CASES

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The history of continuous caudal anesthesia for obstetrics was discussed by Edwards and Hingson [1] in 1942 and later by Hingson and Edwards [2] and by Gready and Hesseltine.[3]

This paper is an analysis of 300 obstetric cases at the Brooke General Hospital in which continuous caudal anesthesia was employed. In 288 anesthesia was satisfactory; in 12 it was not and supplementary anesthesia was necessary. This type of anesthesia was used for all patients admitted to the hospital for delivery with a few exceptions which will be mentioned. The 300 cases which form the basis of this report therefore represent an average group and are not selected cases. The only obstetric patients for whom this type of anesthesia was not used were those who presented definite obstetric contraindications, such as placenta previa, contracted pelvis or some abnormality of the sacrum or coccyx. This series included anterior, posterior and breech presentations, one face presentation and one set of twins, as may be seen in the accompanying table.

Number of Pregnancies and Complications in 300 Obstetric Cases in Which Continuous Caudal Anesthesia Was Employed

Number of pregnancies	Cases
First pregnancy	276
One or more previous pregnancies	24
Complications	
Breech presentation	4
Posterior position	28
Spontaneous rotation	10
Forceps rotation	18
Multiple pregnancies (twins)	1

The type of solution used was a 1.5 per cent solution of procaine hydrochloride. The amount given varied considerably, depending on the length of labor and how quickly the continuous caudal anesthesia was started. The largest quantity used was 1,000 cc. and the least was 30 cc. The longest administration was twenty-four hours and the shortest thirty minutes. The average anesthesia time was eight hours and twenty minutes.

The first stage of labor was conducted along natural lines. If its progress was to be normal, it was necessary to watch the level of anesthesia. In our cases we found it expedient to keep the level of anesthesia halfway between the symphysis and the umbilicus. If it was allowed to become lower anesthesia was not complete, and if it extended higher progress of labor was impaired.

It was noted early in our series that in many cases labor progressed rapidly until the cervix was dilated 7 or 8 cm. and then would make no progress for several hours until the membranes ruptured, whereupon rapid completion of dilatation would ensue. For this reason we artificially ruptured membranes at this stage and thereby considerably shortened labor in these cases. This absence of progress should be watched carefully, otherwise prolonged labor may result.

The second stage of labor was altered greatly by continuous caudal anesthesia. This was particularly true among primiparas. The patient did not have any desire to bear down because of the anesthesia of the perineum. For this reason the head may be left on the perineum for hours if the attending doctor is not watchful.

Multiparas were able to push the baby out rather easily when instructed to do so. Primigravidas were unable to do this even after prolonged pushing. In 20 cases we attempted to have primigravidas expel their babies. In all of these cases the level of anesthesia was well below the halfway mark between the symphysis and the umbilicus. Yet, in all of these cases, after two hours of pushing with their contractions, little progress was made. It is our belief that more than two hours pounding on the perineum is dangerous to the welfare of the infant. For this reason it was necessary to perform episiotomy on all primiparas, and for 70 per cent of our primiparas forceps also were necessary for delivery.

Posterior positions were much more common when caudal anesthesia was employed than in our previous cases. Posterior positions occurred in 10 per cent of the cases, whereas we previously observed it in only 4 per cent. This change was attributed to the relaxation of the levator muscles with the resultant failure of a large number of fetuses to rotate spontaneously. This was compensated for by the ease with which rotation could be effected. This was true only if time was given for the head to descend to the perineum. It was our policy to allow babies in the posterior position to remain on the perineum for two hours and then to rotate the child if rotation had not taken place. Rotation will occur in about 50 per cent of cases under caudal anesthesia. It has been noted in posterior positions that as the head descends through the pelvis the patient experiences severe pressure pains in the back and in the pelvic bones that cannot be relieved by caudal anesthesia. This pain apparently has no relation to uterine contractions, as it is constant. The patients are completely relieved of uterine pain even in the presence of severe pressure pains.

As we have had only four breech presentations in this series, little can be said except that the babies were delivered with ease owing to the relaxation of the perineum. This was also true of the one set of twins. One of these had a breech presentation and the other a cephalic; both were delivered with ease, as the mother had two children and pushed both out spontaneously when instructed to do so.

The third stage of labor should be managed carefully. Oxytoxics should not be given prior to separation of the placenta, nor should the uterus be manipulated before separation takes place. If oxytoxics are given or the uterus is manipulated earlier, tetany of the uterus is likely to occur and a retained placenta results. One should leave the uterus entirely alone until separation of the placenta takes place; then gentle traction may be made on the cord and, placing the other hand on the abdomen one pushes the uterus gently upward with the thumb; thus the uterus is pushed away from the placenta. When this maneuver is completed, the placenta will be in the vagina and a gentle push on the

From the Sections of Obstetrics and Anesthesia of the Surgical Service of Brooke General Hospital, Fort Sam Houston, Texas.
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uterus in order to make it act like a piston will deliver the placenta. Gentleness cannot be stressed too much in these maneuvers; otherwise tetany of the uterus will result with retention of the placenta. If the method just described is used, considerably less blood is lost than in cases in which caudal anesthesia is not used. Delivery by Credé's method should never be attempted.

The over-all length of labor was slightly increased in cases of continuous caudal anesthesia. The average length of labor in our cases before caudal anesthesia was employed was eight hours; since caudal anesthesia has been used, it has been fourteen hours. This is attributed to the prolongation of the second stage of labor. It has been our policy in this series to take the patient to the delivery room when the presenting part can actually be seen at the vulva.

In the 300 cases no maternal mortality occurred. No effect was noticed on the baby; all cried spontaneously on delivery. Three babies were lost, but the causes were entirely unrelated to the anesthesia. This is a very low fetal mortality rate and may signify that labor under caudal anesthesia is less traumatic to the baby. It cannot be accounted for in any other way.

INDICATIONS FOR STARTING CAUDAL ANESTHESIA

We have learned that certain conditions should be fulfilled before continuous caudal anesthesia should be started. These hold true only for primigravidas, as the caudal anesthesia may be started for multigravidas as soon as definite labor is established. These conditions are as follows: (1) The head should be engaged, (2) contractions should be occurring at five minute intervals or less, (3) there should not be any disproportion between the presenting part and the pelvis and (4) dilatation of the cervix of 1 cm. or more should have occurred.

In the first 20 to 30 cases caudal anesthesia was started before the cervix was dilated 1 cm. and in some cases before contractions were five minutes apart. In all these cases labor was slowed down definitely and in some it was stopped completely. It was then necessary to let the anesthesia wear off before labor progressed. Caudal anesthesia was started again when the requirements just listed were met. Labor was concluded rapidly. These observations demonstrated that caudal anesthesia should not be started too soon. In the last 150 cases the foregoing indications have been fulfilled before caudal anesthesia was started, and uniformly good results have been obtained.

COMPLICATIONS AND PRECAUTIONS

The dangers of this type of anesthesia may be grouped under three headings: (1) infection, (2) injection into the cerebrospinal space and (3) circulatory collapse.

Infection should be seriously considered as the needle is introduced through a region which is hard to sterilize. In our first cases the site of injection was cleansed with soap and water followed by an antiseptic solution. In the first 50 cases in our series one epidural abscess occurred. The patient was seriously ill for three weeks but responded to large doses of sulfonamide compounds and completely recovered. Since that time we have cleansed the part with soap and water followed by alcohol and ether and then have painted it with an antiseptic solution. It must be stressed that strict asepsis is absolutely essential during the entire technic.

Injection into the dura is obviously dangerous, and the precautions to be taken will be explained in the technic of administration. This complication did not occur in any of our 300 cases.

The most serious danger is that of circulatory collapse. This occurred in 3 of our 300 cases. In 1 of these the blood pressure and pulse could not be obtained and the fetal heart rate became irregular and almost stopped. The baby put out large quantities of meconium, which was evidence that it was in distress. Epinephrine was given intravenously, and both mother and baby recovered without any apparent ill effects.

To prevent such collapse, 2 minims (0.12 cc.) of epinephrine was placed in the first 25 cc. of the anesthetic solution injected. This was repeated in subsequent injections only when the systolic blood pressure fell to less than 100 mm. of mercury. Since this method was adopted, we have not had any further cases of collapse. Such a small quantity of epinephrine has no effect on labor, and any other effect it may exert is purely transitory.

CONTINUOUS CAUDAL ANESTHESIA IN CASES OF ECLAMPSIA

Continuous caudal anesthesia was used in the treatment of 3 patients who had eclampsia in this hospital. All of these had one or more convulsions, and use of continuous caudal anesthesia gave similar results. The following is a summary of one of the cases:

> The patient's blood pressure measured in millimeters of mercury was 190 systolic and 110 diastolic on admission. An attempt was made to quiet her with sedation, but her condition failed to improve. Later on the day of admission, blindness developed suddenly. At this time the membranes ruptured and the patient went into active labor. One hour after labor started, she had a convulsion lasting two minutes and went into coma. Blood pressure at this time was 200 mm. systolic and 120 mm. diastolic. Three hours after labor started, continuous caudal anesthesia was begun. The systolic blood pressure immediately dropped to 130 mm. and the diastolic to 90. The patient came out of the coma and was rational for the first time in four hours. The headaches and dizzy spells that she had complained of all day were gone and she stated that she felt fine. The blood pressure remained less than 150 mm. systolic and 90 diastolic throughout the entire course of labor and the patient was delivered of a normal living child. She did not have any more convulsions nor did she return to coma.

In the other 2 cases of eclampsia the histories were similar and results were equally satisfactory. More work is being done on this phase of continuous caudal anesthesia. It should be pointed out, however, that these patients should be watched for circulatory collapse, as too great a drop in blood pressure might be disasterous.

TECHNIC OF PRODUCING CONTINUOUS CAUDAL ANESTHESIA

The patient is placed on her right side in a modified Sims position and close to the side of the bed. The lumbosacral region is scrubbed with soap and water, followed by alcohol and ether. Tincture of merthiolate then is applied to the region and sterile drapes are put in place. A skin wheal is raised over the sacrococcygeal ligament. A 13 gage needle is passed through the skin wheal and is advanced through the sacrococcygeal ligament. After the tip of the needle comes into contact with bone on the anterior border of the caudal canal, the needle is rotated 90 degrees to bring its bevel against bone. The needle is then advanced about 1 inch (2.5 cm.). A glass syringe containing 25 cc. of the anesthetic solution is attached to the needle and 1 or 2 cc. of the anesthetic solution is injected to clear the

needle of any obstruction. The plunger is withdrawn gently in order to make sure that the tip of the needle is not lying within the lumen of a blood vessel or within the subarachnoid space. Twenty-five cc. of the anesthetic solution is injected slowly into the caudal canal. As soon as the initial dose has been injected the syringe is detached from the needle and a No. 5 French nylon ureteral catheter which has been sterilized in an autoclave is passed through the needle and is advanced until the tip of the catheter is approximately 1½ inches (3.8 cm.) above the sacral hiatus. The catheter is now supported in place while the needle is removed. The catheter is taped to the skin and the region is sealed with adhesive tape to prevent soiling from the perineum. The patient may now be turned on her back and made comfortable. It is important to refrain from advancing the tip of the catheter more than 1½ inches (3.8 cm.) into the caudal canal. If the catheter is placed high in the canal, unilateral anesthesia may result.

Additional injections of 25 cc. of the anesthetic solution are given whenever the patient begins complaining of discomfort.

COMMENT

We believe that the catheter method is much safer than the method of using an indwelling needle. If a needle breaks in the caudal canal, surgical intervention for its removal will be necessary. Indwelling needles also produce an unnecessary amount of trauma inside the caudal canal. The sacrococcygeal ligament acts as a fulcrum, holding the hub of the needle in a fixed position. Every motion of the patient will cause the tip of the needle to sweep the inside of the caudal canal, damaging the vascular plexus and traumatizing the periosteum. This cannot happen if the needle is replaced with a flexible ureteral catheter.

The position of the patient during the initial injection is important. We do not believe we are justified in employing the knee-chest position. If the patient is placed in a modified right Sims position near the edge of the bed it is an easy matter to reach over her and place the needle and catheter in the caudal canal.

We have kept our patients in a slight Fowler position during labor. This prevents the anesthesia from ascending to an unnecessary height and also prevents the fall in blood pressure and nausea which frequently occur if the anesthetic solution ascends to envelop the thoracic nerves.

Our first 25 or 30 patients were anesthetized with 1.5 per cent solution of procaine without epinephrine. In these cases we observed a few who had a sudden lowering of blood pressure followed by a feeble thready pulse, nausea and vomiting. Since that time we have included 2 minims of epinephrine with the initial injection for all patients except those with toxemia. We have not observed evidence of cardiovascular collapse since epinephrine was added to the anesthetic solution, nor have the patients become nauseated.

We have used metycaine for a number of patients and have not been able to demonstrate results superior to those obtained with procaine. Procaine has been used in the majority of our cases because we believe it to be the safest local anesthetic agent available at present.

CONCLUSIONS

1. Continuous caudal anesthesia is satisfactory in most cases.

2. We feel that the use of a ureteral catheter is safer and more comfortable for the patient.

3. Epinephrine should be added to the initial injection of anesthetic solution into the caudal canal in all cases except those of toxic reactions.

4. Continuous caudal anesthesia may be of service in cases of eclampsia, for 3 patients with eclampsia were delivered while under caudal anesthesia without any maternal or fetal death and with apparent control of symptoms of toxemia.

5. Absolute asepsis must be observed at all times.

6. A lower fetal mortality rate than usual was noted.

EXCRETION OF THIAMINE, RIBOFLAVIN, NIACIN AND PANTOTHENIC ACID IN HUMAN SWEAT

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The excretion of vitamins in sweat is of interest from the standpoint of the metabolism of such vitamins in the body and the possible loss of such vitamins by this channel, especially in instances of profuse sweating. Such results also have a bearing on the physiology of perspiration. The amount of sweat vitamins might also conceivably have a bearing on the growth of organisms on the skin, since some of these vitamins have a definite effect on the growth of certain micro-organisms.

One of us has reported on the excretion of ascorbic acid in sweat.[1] An increased excretion of this vitamin was noted in sweat after administration of large doses of the vitamin. Hardt and Still [2] studied the excretion of thiamine as well as of ascorbic acid in sweat after exercise. They concluded that 5 to 15 per cent of ingested thiamine might be the daily loss by way of the sweat and that the giving of 50 mg. of thiamine to their subjects led to an increased excretion of thiamine by this channel. Results on niacin, pantothenic acid and riboflavin do not appear to have been previously reported.

We have studied the excretion of thiamine, niacin, riboflavin and pantothenic acid in heat sweat of human subjects with and without the administration of large doses of these vitamins. The subjects were normal men.

METHODS

Specimens of sweat were collected as follows: The subjects were encased in a rubber bag as far as their necks and were seated in a heat cabinet. Incandescent lamps furnished sufficient heat to obtain 100 to 200 cc. of sweat in twenty to thirty minutes.

Thiamine was determined by the chemical method of Kirch and Bergeim,[3] and niacin,[4] pantothenic acid [5]

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and riboflavin[6] by microbiologic methods. In the thiamine method the sweat was concentrated by evaporation in vacuo in acid solution. In the other methods the sweat was filtered and heated to kill bacteria before analysis.

In certain instances large doses of the vitamins were given by mouth or by intramuscular injection at different periods before sweating was induced. Details of administration and analytic results obtained are given in table 1.

THIAMINE IN SWEAT

Thiamine values varied from <0.06 to 0.60 microgram per cubic centimeter of sweat. The <0.06 microgram value does not indicate a complete absence of thiamine but merely that the amount was too small to be determined by the chemical method used. In general subjects were given a shower bath shortly (usually about forty-five minutes) before sweating was induced. This was done in order that sweat evaporated on the skin might be removed so that the results obtained would approximate as closely as possible the values for the sweat as it poured out by the sweat glands. Nevertheless, some concentration of sweat on the surface of the skin probably occurred in some cases, and some of the values may be somewhat high on this account. This is suggested by the fact that when two successive samples of sweat were obtained the second sample generally showed somewhat lower values for thiamine as well as other vitamins. The lower values in the table are thus probably in general to be given some preference. Further light is thrown on this question by experiments 21 and 22. In experiment 21 two samples of sweat each of 200 cc. were collected, one immediately after the other. The first sweat should have washed the skin well, so that the second sweat should have been a fairly pure secretion. Yet analysis for the vitamins shows little change in values. Nor were the results much different in experiment 22 in which a single specimen was taken from the same subject without previous bathing. Experiment 22 may have been influenced by the fact that on the day of sweating the outdoor temperature was around 95 F. and hence fairly profuse sweating had occurred before the sample was taken. That the influence of evaporation of sweat on the skin in these experiments was not such as strongly to affect the results is further indicated by the reasonable constancy of the findings and by comparisons such as were made in experiments 19 and 20 in which the findings were similar in spite of the fact that in the first test the subject was given two baths at forty-five minutes and five minutes before sweating was induced and in the second case no bath at all was given on the day of sweating.

An average value of 0.2 microgram per cubic centimeter of sweat was obtained. For reasons stated, this figure may be a little high and the value of 0.15 microgram may be more nearly representative. A really definitive average would require a larger number of cases: 0.15 microgram per cubic centimeter would correspond to 150 micrograms per liter of sweat. Hardt and Still[2] found about 90 micrograms per liter in their experiments.

The physiologic significance of these results is not entirely clear. Williams[7] gives figures on the amounts of these vitamins contained in a well rounded diet (2,500 calories). For thiamine he gives a figure of 3 mg. a day. Lane, Johnson and Williams[8] calculate, however, that the thiamine content of the average American diet, such as was consumed by the middle two thirds or three fourth of the population prior to the advent of enriched bread and flour, was about 0.8 mg. per 2,500 calories and that if the use of enriched flour and bread becomes universal the average intake will be increased to about 1.3 mg. per 2,500 calories. Taking the figure of 150 micrograms per liter of sweat, one would have in this amount of sweat about 5 per cent of a good intake or about 11.5 per cent of the 1.3 mg. figure for the average American diet. Under average conditions of temperature and humidity and light work, the amount of sweat may not be much over 500 cc. a day. Any increases in temperature and amount of work readily increase the amount of sweating, so that with warm weather or fairly active work 2 to 3 liters of sweat may be secreted, and with a hot environment and active work considerably larger amounts of sweat may be poured out. With 3 liters of sweat the loss by secretion would correspond to about 15 per cent of intake on a good diet and more than 30 per cent of intake on the average American diet,

TABLE 1.—*Thiamine, Riboflavin, Niacin and Pantothenic Acid in Sweat (Micrograms of Vitamin per Cubic Centimeter of Sweat)*

Experiment	Thiamine	Riboflavin	Niacin	Pantothenic Acid	Type of Diet and Comment
1	<0.06	0.10	0.36	0.43	Regular mixed diet
2	<0.30	<0.05	0.10	0.35	Regular mixed diet
3A	<0.30	0.12	0.25	0.80	Regular diet + thiamine 3 mg., riboflavin 5 mg., niacin 50 mg. and pantothenic acid 10 mg. a day for 4 days; first sweat specimen
3B	<0.30	0.10	<0.10	0.50	Same as 3A; second sweat specimen
4	0.60	0.12	0.30	0.26	Same as 3A for 3 days; no extra vitamin for 2 days before sweating
5	0.15	0.11	0.40	0.25	Regular mixed diet
6	0.30	0.11	<0.10	0.48	Regular mixed diet
7	0.06	0.18	0.15	0.55	Regular mixed diet
8	0.24	0.20	0.10	0.78	Regular mixed diet
9	0.30	0.23	0.12	0.37	Regular mixed diet
10	0.06	0.16	0.12	0.78	Regular mixed diet
11A	0.06	0.20	0.12	0.20	Regular mixed diet
11B	<0.06	0.20	0.13	0.20	Same sweat as 11A but incubated for 24 hours at 37 C. before analysis
12	<0.06	0.03	0.25	0.23	Regular mixed diet
13	0.24	0.25	0.30	0.22	Regular mixed diet
14	<0.06	0.15	0.29	0.23	Regular mixed diet
15	0.06	0.03	0.26	0.20	Day of sweating thiamine 6 mg., riboflavin 10 mg., niacin 100 mg., pantothenic acid 20 mg.; preceding day 1¼ times as much
16A	0.36	0.14	0.46	0.54	Regular diet; sweat before vitamin injection
16B	0.15	0.05	0.35	0.23	Sweat 30 minutes after intramuscular injection of thiamine 10.5 mg., riboflavin 1.05 mg., niacin 35 mg., pantothenic acid 5.86 mg.
17	0.09	0.13	0.30	0.19	Regular mixed diet; 4 days after injection (16B)
18A	0.45	0.13	0.30	0.20	Regular mixed diet; before vitamin injection
18B	0.36	0.14	0.50	0.12	One hour after intramuscular injection of thiamine 15 mg., niacin 50 mg., riboflavin 1.5 mg. and pantothenic acid 8.4 mg.
19	0.30	0.25	0.25	0.28	Regular mixed diet; bath 45 minutes and 5 minutes before sweating
20	0.20	0.26	0.20	0.19	Same as 19 but no bath on day of sweating
21A	0.40	0.20	0.12	0.20	Regular diet; first 200 cc. of sweat
21B	0.30	0.30	0.10	0.30	Same as 21A; second 200 cc. of sweat
22	0.24	0.19	0.15	0.19	Same as 21A but no bath on day of sweating

6. Snell, E. E., and Strong, F. M.: Indust. & Engin. Chem. (Anal. Ed.) **11**: 346, 1939. Silber and Unna.[5]

7. Williams, R. J.: Approximate Vitamin Requirements of Human Beings, J. A. M. A. **119**: 1-3 (May 2) 1942.

8. Lane, R. L.; Johnson, Elizabeth, and Williams, R. R.: Studies of the Average American Diet: I. Thiamine Content, J. Nutrition **23**: 613 (June) 1942.

taking the 1.3 mg. figure. Hardt and Still figured that 5 to 15 per cent of ingested thiamine is lost with moderate temperature and work. It would seem that under average conditions the loss of thiamine in sweat, while appreciable, might not be of great physiologic significance. With profuse perspiration the loss might well be of sufficient concern to warrant special precautions to insure that the thiamine level of the diet did not fall too low. It must, of course, be borne in mind that some persons may excrete more than the average amount on which these calculations are based and some definitely less.

RIBOFLAVIN IN SWEAT

Riboflavin values found for sweat were 0.03 to 0.30 microgram per cubic centimeter, or an average of 0.15 microgram. With some special emphasis on the lower values or reasons previously stated, the average would be nearer 0.12 microgram. This would be 120 micrograms per liter of sweat and a little over 3 per cent of the figures of Williams for a good diet (3.7 mg. a day or about 5.5 per cent of a more nearly average American intake of 2.2 mg.[9] These values are somewhat less than those obtained for thiamine, and the physiologic significance of the losses by sweat may be somewhat less. The loss under average conditions is probably not of great importance but might become so in case of profuse perspiration and diets not optimal for this vitamin.

PANTOTHENIC ACID IN SWEAT

For pantothenic acid values of 0.12 microgram to 0.80 microgram were obtained with an average of 0.34 microgram per cubic centimeter of sweat. As the lower values probably represent more nearly the sweat as secreted, a figure of 0.3 microgram may be more representative. If one considers a good diet to contain about 11 mg. of pantothenic acid, the loss in a liter of sweat would be about 3 per cent of intake, or for 3 liters about 9 per cent. This loss is proportionally similar to the losses of thiamine and riboflavin and may have a similar significance.

NICOTINIC ACID IN SWEAT

Values for nicotinic acid in sweat were obtained varying from 0.1 to 0.46 microgram per cubic centimeter, with an average of 0.23 microgram. This may be slightly high owing to the concentration of sweat on the skin, so that a value of 0.2 microgram may be more nearly correct. This would correspond to 200 micrograms of nicotinic acid per liter of sweat. This would be about 0.5 per cent of the amount in a good diet or about 1 to 2 per cent of that in more usual but adequate diets. The loss of nicotinic acid in sweat could hardly be of physiologic significance.

INFLUENCE OF HIGH VITAMIN INTAKE

Several experiments were carried out in which the person was given large amounts of each of the vitamins studied either by mouth or by intramuscular injection. The results are given in table 1. The results for thiamine are somewhat irregular, so that further study is needed. The results are complicated by the fact that when no special vitamin is given a second specimen of sweat may contain less vitamin than a first specimen, owing probably to the fact that the first sweat washes out any adherent vitamin that may have been concentrated on or in the skin. Also, perhaps, because the effects of administration are somewhat transitory. Hardt and Still found that after one hour of exercise the ratio of thiamine in sweat to that in urine might be 71 : 1 and after an hour and a half only 8.5 : 1. Our results, as far as they go, indicate that injection or ingestion of thiamine in large amounts may have some effect on excretion in the sweat, but such effect is very slight compared with the amounts so administered.

It may be that there is some effect as long as the thiamine in the blood remains very high but that the thiamine is rapidly removed from the blood by the tissues so as not to be readily called on for excretion. This fits in with the fact that the thiamine content of the blood is very low and exists mostly in combined form. We have tested several specimens of sweat for thiamine pyrophosphate by treating the sweat with phosphatase [3] before analysis, and our results have always been negative.

No increase of riboflavin was noted in sweat after ingestion or injection of large doses of this vitamin. Nor were definite significant changes noted in the studies on niacin and pantothenic acid. It seems clear, therefore, that when large doses of the four vitamins studied are given by mouth or are injected intramuscularly a considerable part of this vitamin is not excreted in the sweat. This is probably due largely to the fact that these vitamins do not remain in free form in the blood in high concentration for any long period. This appears to be more probable than that the sweat glands have such an extremely low capacity for excretion of these vitamins, since, as shown by Hardt and Still, under certain conditions the excretion of thiamine in sweat may be greater than that in urine. Under ordinary conditions, however, the twenty-four hour elimination of these vitamins by the urine is much greater than in the sweat. It must also be borne in mind that the combined urine and sweat thiamine do not account for more than a part of the ingested thiamine, apparently because of the destruction of the vitamin in the body.

The losses per liter of sweat of about 3 to 10 per cent of the intake for thiamine, riboflavin and pantothenic acid are not much different from the losses of about 4 per cent for ascorbic acid (about 2 mg. per liter compared with the adult requirement of about 50 mg. a day). Since vitamin C-salt tablets have been reported from the medical division of the du Pont Company as superior to salt alone in cases of profuse sweating, it is possible that the other vitamins might also be helpful under similar conditions.

BACTERIA AND THE VITAMINS OF SWEAT

The bacteriology of the sweat as far as these vitamins are concerned may be considered from two angles. The question arises first as to whether the sweat bacteria destroy or use up the vitamin present or engage in any synthesis. We found on incubating sweat at 37 C. for twenty-four hours that there was some decrease in the thiamine level but no change in the pantothenic acid, niacin or riboflavin levels. Under these conditions considerable bacterial growth occurs and the sweat changes from a p_H of about 5 to one of about 8. It may be that the destruction of thiamine noted was due to the alkalinity developed. However, it does not appear that

9. Stiebeling, Hazel K., and Phipard, Esther F.: Diets of Families of Employed Wage Earners and Clerical Workers in Cities, Washington, D. C., Circular 507, United States Department of Agriculture, 1939.

bacteria are much concerned with either the formation or the destruction of these vitamins on the surface of the skin and that the vitamins found are not of bacterial origin.

Further support for this view was obtained in experiments in which 5 cc. of sweat was added to 5 cc. of plain broth with or without the addition of 20 micrograms of thiamine and incubated at 37 C. for twenty hours. No significant change was noted in the amount of thiamine in either case, indicating that the bacteria of the sweat neither synthesized nor destroyed thiamine under these conditions. The use of dextrose acid mediums in place of plain broth gave similar results, indicating that the p_H of the medium was not a factor. The results are shown in table 2.

SUMMARY AND CONCLUSIONS

Heat sweat was found to contain on the average about 150 micrograms of thiamine, 120 micrograms of riboflavin, 300 micrograms of pantothenic acid and 200 micrograms of nicotinic acid. It is possible that these values may be slightly higher than true values for sweat as secreted by the glands because of the difficulty of entirely avoiding concentration due to evaporation on the skin surface. These values per liter correspond

TABLE 2.—*Sweat Bacteria and Thiamine Destruction and Synthesis*

Five cc. of sweat plus 5 cc. of medium was incubated at 37 C. for twenty hours. Bacterial growth was noted in all cases.

Experiment	Medium Used	Thiamine Present Before Incubation, Micrograms	Thiamine Found After Incubation, Micrograms
1	Plain broth	0	0
2	Plain broth	0	0
3	Plain broth	20	21
4	Plain broth	20	21
5	Acid dextrose broth	0	0
6	Acid dextrose broth	0	0
7	Acid dextrose broth	20	20
8	Acid dextrose broth	20	21

for thiamine to about 5 per cent of intake on a good diet, for riboflavin and pantothenic acid to about 3 per cent and for nicotinic acid to about 0.5 per cent. For average American diets the percentages would be more nearly 10 per cent for thiamine, 5 per cent for riboflavin and 1 per cent for nicotinic acid. The excretion of such amounts of these vitamins cannot be said to be negligible from the physiologic standpoint although perhaps becoming of real importance only in case of rather profuse sweating or on diets low in these vitamins. The elimination of nicotinic acid could hardly be of importance in any case. The losses of the other vitamins are of the same order as losses reported for ascorbic acid in sweat. Since favorable results have been reported in the administration of ascorbic acid in cases of profuse perspiration, it is possible that supplements of other vitamins might be worthy of trial under similar conditions. Ingestion or intramuscular injection of large amounts of these vitamins did not lead to any noticeable or persistent increase of their secretion in the sweat.

These vitamins as found in sweat appear to be a true excretion not appreciably influenced by bacteria on the skin. Sweat contains sufficient of these vitamins to promote bacterial growth provided conditions are otherwise favorable. Thiamine appears to exist in sweat only in the free form.

FAMILIAL TUBEROUS SCLEROSIS (EPILOIA) WITHOUT ADENOMA SEBACEUM

REPORT OF TWO CASES

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Tuberous sclerosis (epiloia, Bourneville's disease) is considered a rare and unusual entity. For this reason its presence as a diagnostic possibility in cases in which epileptiform seizures are present is seldom entertained. Yet the literature on this subject has assumed impressive proportions. In the sixty years from the time Bourneville [1] first described it in 1880 down to 1940 one hundred and twelve reports have been collected dealing with tuberous sclerosis and its related neurocutaneous syndromes (Recklinghausen's neurofibromatosis, angiomatosis cerebri or Sturge-Weber's disease, and von Hippel-Lindau's disease).

In recent years the roentgenologist has become more alert to the significance of metastatic calcifications (calcified plaques) in survey films of the skull as an identifying feature of tuberous sclerosis, and the internist has in turn been stimulated to search for its other characteristic manifestations. With the increasing use of pneumoencephalography, this type of ectodermosis is being more commonly reported, its features are more clearly defined and more light has been thrown on its hamartial nature and its relation to the tumor problem.[2]

In this communication it is our purpose to present 2 cases of familial epilepsy in which the weight of evidence is diagnostic of tuberous sclerosis.

REPORT OF CASES

CASE 1.—W. M. Jr., a white man aged 22, seen April 8, 1941, had a history of epileptic seizures and poor vision. He had been a confirmed epileptic since the age of 2 years. In the week preceding the first visit he averaged eight to ten seizures a day. Well defined mental deterioration and periods of irritability had appeared in recent months. He stuttered and had never been able to pursue any gainful occupation. His father's grandfather was known to have had convulsions. A grandfather and aunt were operated on for "brain tumor." Physical examination revealed no cutaneous lesions and no evidence of facial rash suggestive of adenoma sebaceum. The extremities showed no loss of motor power. Decided mental retardation was present.

The eyeballs were prominent with a widening of the palpebral fissures. There was a horizontal and rotatory nystagmus present with movement to the right. Extensive choroidal changes were present involving both eyes, with a moderately advanced grade of optic atrophy. Large macular atrophic lesions were noted. Myopia of a high grade was found. The lesions were believed by the ophthalmologist to be on the basis of a hereditary macular degenerative process, congenital and colobomatous in origin.

Roentgenograms of the skull showed that the outer table was thick, and a number of calcified deposits were seen

From the Jewish Hospital.
Dr. Samuel Levine rendered aid in the interpretation of the roentgenograms.
Released for publication by the War Department Manuscript Board, which assumes no responsibility, other than censorship, for the contents of this article.

1. Bourneville, D. M.: Contribution a l'étude de l'idiotie; idiotie et épilepsie hémiplégique, Arch. de neurol. **1**: 81-91, 1880.

2. Moolten, S. E.: Hamartial Nature of Tuberous Sclerosis Complex and Its Bearing on the Tumor Problem: Report of Case with Tumor Anomaly of the Kidney and Adenoma Sebaceum, Arch. Int. Med. **69**: 551-720 (April) 1942.

throughout the calvarium 3 to 5 mm. in circumference (figs. 1 and 2). A pneumoencephalogram (made by Dr. Michael Scott) showed focal areas of brain atrophy in the right parietal region. There was an obliteration of the subarachnoid pathways in the right frontal area. A number of microgyria were observed. The right ventricle was not outlined by air.

Fig. 1 (case 1).—Lateral view of survey roentgenogram showing metastatic calcifications throughout the calvarium. The patient has epilepsy with mental deterioration and macular degenerative changes.

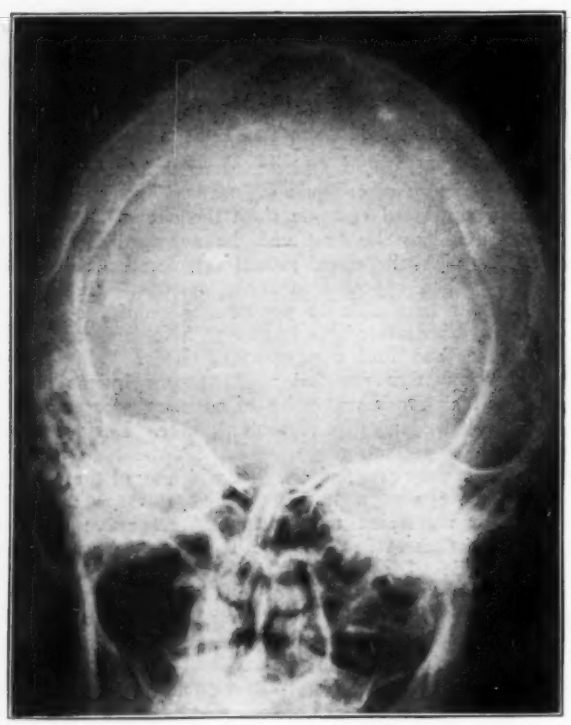

Fig. 2 (case 1).—Anteroposterior view showing calcified areas scattered throughout the brain substance; one is situated in the region of the right ventricle.

Numerous small irregularly calcified deposits were seen (figs. 3 and 4) which in the opinion of Dr. E. P. Pendergrass, were situated within the ventricles. Two masses may be noted in figure 4 located in the region of the unfilled right ventricle in the anteroposterior view.

The hemoglobin content was 13.5 Gm., and there were 4,950,000 red blood cells and 6,800 white blood cells. Sickle cells were absent. Serologic reaction of the blood was negative. No ova or parasites were found on repeated stool examinations. The purified protein derivative test was negative. Blood calcium was 11.1 mg. per hundred cubic centimeters of blood. A roentgenogram of the chest showed clear lung fields, and the long bones presented no alteration in structure or architecture. Intravenous urography showed good bilateral function and no evidence of renal neoplasm or congenital malformation. The patient responded well to phenytoin sodium therapy and at present convulsions have decreased to two slight attacks every three months.

CASE 2.—W. M., a white man aged 46, father of W. M. Jr., was seen Nov. 12, 1941 following a typical epileptic seizure of short duration. The history revealed one slight attack twelve years before. Examination, both physical and neurologic, proved negative. The eyegrounds were normal.

A roentgenogram of the skull on the left side in the basal view showed one or two small calcifications situated in the region of the left ventricle (fig. 5).

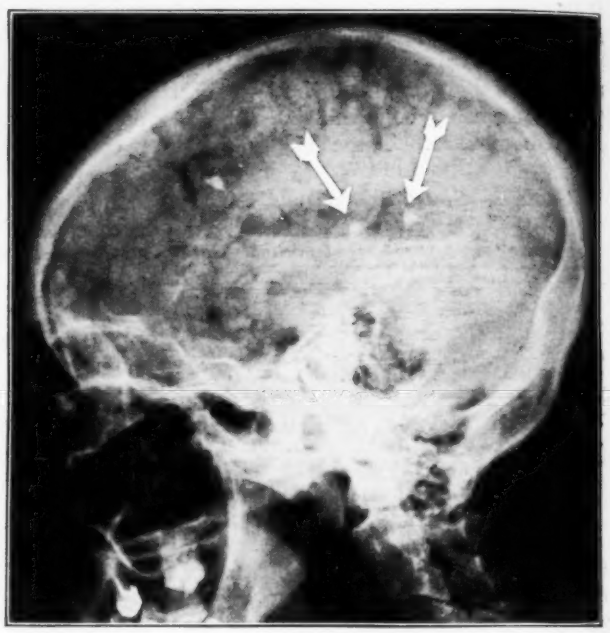

Fig. 3 (case 1).—Lateral view following pneumoencephalography showing calcifications within the shadow of the left ventricle above the fluid level. Note microgyria.

With phenobarbital and sedatives, the patient was asymptomatic until April 4, 1942, when a convulsion occurred in his sleep.

SYMPTOMS

Tuberous sclerosis, in its classic form, presents the following symptoms: (1) epileptic seizures, (2) mental deficiency, (3) adenoma sebaceum (acneform eruption, butterfly or bat wing in distribution, involving the nasolabial folds and having a trigeminal distribution), (4) congenital tumors of the eye (van der Hoeve's phacoma) and of other organs including rhabdomyomas of the heart and kidney (hypernephroma or Wilms' tumor), (5) periungual fibromas, (6) cystic changes in the small bones, (7) other less frequent congenital defects such as harelip, cleft palate, hypoplasia of kidney and ureter, pulmonary artery stenosis, simian hands, hypertrophy of the external ears, high arched palate, spina bifida, microcephaly and accessory digits, syndactyly, hemihypertrophy, epicanthus, transposition of the great vessels and intestinal polyposis.[3]

3. Heublein, G. W.; Pendergrass, E. P., and Widmann, B. P.: Roentgenographic Findings in the Neurocutaneous Syndromes, Radiology **35**: 701-727 (Dec.) 1940.

PATHOLOGY

Sclerotic, potato-like patches are scattered over the surface of the brain, and from this characteristic the name tuberous sclerosis is derived. The heterotopic plaques are distinguished from the normal cortex by their rubbery consistency.[4] More characteristic are the

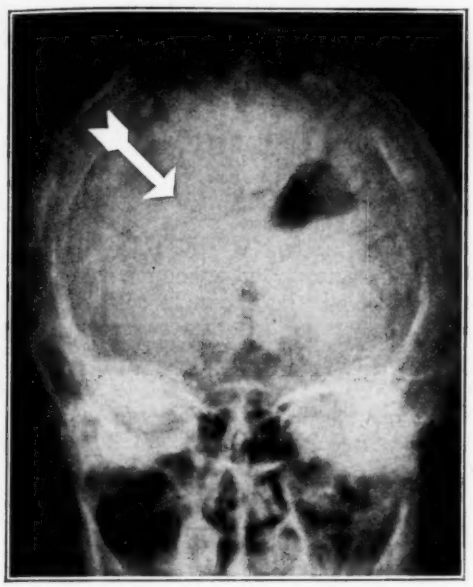

Fig. 4 (case 1).—Posteroanterior view of pneumoencephalogram. Arrow indicates calcified mass located in region of right ventricle, which did not fill with air.

subependymal proliferations that are found in the lateral ventricles closely associated with the choroid plexuses.

Abortive and latent forms of the disease lacking a fully developed picture have been recognized. Critchley and Earl [5] classify these as follows:

1. Adenoma sebaceum alone.
2. Adenoma sebaceum with epilepsy and without mental defect.
3. Adenoma sebaceum with symptoms pointing to intracranial neoplasm.
4. Visceral tumor alone with familial history of tuberous sclerosis.

Demonstrable calcifications within the brain in tuberous sclerosis were first mentioned in the Scandinavian literature when Dalsgaard-Nielsen [6] reported fleecy calcifications in a boy aged 14 years who had had convulsive seizures since the age of 9 months and adenoma sebaceum at the age of 12 years. Some were interpreted as hyperostotic formations of the internal lamina; others were assumed to be in the brain substance. The need for the use of the pneumoencephalogram in the light of these facts becomes apparent.

ETIOLOGY

Adenoma sebaceum appears to be evidence of a general ectomesodermal disturbance. The retinal tumors are believed by Grinker [7] probably to be astroblastic neoplasms, and others view them as tumors of low malignancy. The congenital phacomas arise from the nerve fiber layer appearing as small white or gray tumors. These were noted by van der Hoeve [8] in his original description as being also present in von Recklinghausen's neurofibromatosis and von Hippel-Landau's disease which emphasizes one of the characteristics common to this group of congenital neurocutaneous syndromes.

In the background of these congenital anomalies, Yakovlev and Guthrie [9] state, is present an embryonal disturbance of the differentiation of the ectodermal elements. The similarity between tuberous sclerosis, neurofibromatosis and trigeminal nevus (angiomatosis cerebri) has been ascribed by Schwartz and Abramson [10] on an etiologic basis to the interplay of varying combinations of developmental defects: "Of special interest is the occurrence of cutaneous anomalies which are indicative of associated maldevelopments in deeper seated embryologically related structures such as the central and peripheral nervous systems. Also of importance is the frequent association of the three congenital disorders with mental defect and epilepsy."

COMMENT

The discovery of discrete calcified intracranial deposits renders it incumbent on the observer to incriminate or exclude, in addition to tuberous sclerosis, a number of causes. These may be (1) calcified hemorrhagic foci due to birth injury, (2) tuberculomas, (3) calcified multiple angiomas, (4) parasitic disease (calcified ecchinococcus cysts), (5) disturbance in calcium metabolism as seen in parathyroid disease, (6) old abscesses as a result of meningeal disease or pachymeningitis.

In the cases reported herewith, the studies served to exclude any of these possibilities. Birth injury was

Fig. 5 (case 2).—Basal view of survey film. Arrows indicate two small calcifications in the region of the left ventricle. Father of patient 1 with a history of convulsions and long periods of remission.

absent. Tuberculosis was ruled out by a negative history, examination of the chest and cutaneous tests. Stools were clear of ova and parasites. Blood calcium

4. Lind, W. A. T.: Epiloia, M. J. Australia **2**: 290-294 (Sept. 20) 1924.
5. Critchley, MacDonald, and Earl, C. J. C.: Tuberose Sclerosis and Allied Conditions, Brain **55**: 311-346 (Sept.) 1932.
6. Dalsgaard-Nielsen, T.: Tuberous Sclerosis with Unusual Roentgen Picture, Nord. med. tidskr. **10**: 1541-1548 (Sept. 28) 1935 (quoted by Heublein, Pendergrass and Widmann [3]).
7. Grinker, R. R.: Tumors of the Retina, in Cytology and Cellular Pathology of the Nervous System, New York, Paul B. Hoeber, Inc., vol. 3, pp. 1055-1059.
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9. Yakovlev, P. I., and Guthrie, R. H.: Congenital Ectodermoses (Neurocutaneous Syndromes) in Epileptic Patients, Arch. Neurol. & Psychiat. **26**: 1145-1194 (Dec.) 1931.
10. Schwarz, H., and Abramson, H.: Neurocutaneous Syndromes in Childhood, J. Pediat. **3**: 587-607 (Oct.) 1933.

and phosphorus levels were within normal limits. There was no history of infection or meningeal disease, as well as no roentgen evidence of cystic bone disease. The serologic tests were negative.

The weight of evidence favoring a diagnosis of tuberous sclerosis in case 1 includes the presence of epileptic seizures, mental deficiency, eye changes consisting of congenital degenerative atrophic macular changes, calcified masses in the brain localized to the ventricles with an associated microgyria, familial tendency as shown by the presence of epileptic seizures and similar calcifications located in the region of the father's left ventricle and the further evidence of convulsions and brain tumor in the history of other members of the family.

The absence of the typical cutaneous manifestations (adenoma sebaceum) in both cases in the presence of these observations serves to classify these cases among the abortive forms. A number of cases of tuberous sclerosis have been reported in which evidence of nevoid facial eruption was not present. Berkwitz and Rigler [11] report a case in which encephalography disclosed multiple tumor-like nodulations in the lateral ventricles with none of the usual evidences of adenoma sebaceum. A case reported by Drake [12] as tuberous sclerosis showed discrete masses of calcifications in the occipital region with bulging of the right thalamus into the lateral ventricle by encephalography, but physical examination revealed neither retinal phacoma or adenoma sebaceum. Heublein, Pendergrass and Widmann,[3] who quote Drake's case, concur in his opinion that this clearly represented a case of tuberous sclerosis.

The familial incidence of tuberous sclerosis has been reported by a number of observers. Fabing [13] reported its presence in identical twins, and 5 cases of adenoma sebaceum in one family were cited by Shelmire.[14] As previously noted, a latent form classified by Critchley and Earl includes one of visceral tumor with a family history of tuberous sclerosis.

Our attention to the possible diagnosis was directed by the fact that the father had a convulsion while the son was under our observation. The long interval of years between seizures in the father's history is a helpful diagnostic point, since long remission has been stated by Sherlock [15] and others as differentiating these seizures from those due to idiopathic epilepsy.

In evaluating the evidence presented in these case reports, Pendergrass [16] concurred with us that we were dealing with 2 cases of tuberous sclerosis.

A clear understanding of the nature of these calcifications is a necessary corollary to intelligent treatment. Cortical "scars" have been subjected to operative removal, with reported relief of symptoms. Mayfield,[17] for example, reports the removal of two large irregular areas of calcification from the right premotor area and one from the left premotor area of a male Negro with a manic depressive psychosis who had developed jacksonian epilepsy five years after first coming under his observation. Two years after recovery from the operation the attacks recurred. No pneumoencephalographic studies were reported in this case. In the light of the preceding considerations it is readily apparent how thorough the search for the etiology of the epileptiform seizures must be before definitive therapeutic procedures are instituted.

11. Berkwitz, N., and Rigler, L. G.: Tuberose Sclerosis Diagnosed with Cerebral Pneumography, Arch. Neurol. & Psychiat. **34:** 833-838 (Oct.) 1935.
12. Drake, R. L.: A Case of Tuberous Sclerosis with Unusual Clinical Findings, Arch. Neurol. & Psychiat. **34:** 681-682 (Sept.) 1935.
13. Fabing, H.: Tuberous Sclerosis with Epilepsy (Epiloia) in Identical Twins, Brain **57:** 227-238 (Oct.) 1934.
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17. Mayfield, F. H.: Multiple Calcified Cerebral Masses with Psychosis and Convulsions, J. Med. **21:** 485-487 (Jan.) 1941.

SUMMARY AND CONCLUSIONS

1. In the 2 cases of familial multiple cerebral calcifications associated with epileptiform seizures here reported the additional evidence in 1 case of mental deficiency, congenital eye defect, localization of the calcified masses to the lateral ventricles by pneumoencephalography and the presence of calcifications in the other case in the region of the ventricles justifies the diagnosis of tuberous sclerosis (epiloia).

2. The more frequent use of roentgenography and pneumoencephalography is recommended in cases of epilepsy to establish the diagnosis of this neurocutaneous syndrome, even in the absence of adenoma sebaceum.

3. The increasing recognition of this entity will serve more clearly to define its hamartial nature and delimit the diagnosis of idiopathic epilepsy to an ever smaller group.

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RENAL GLYCOSURIA IN SELECTEES AND VOLUNTEERS

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A study of glycosuria was made on 45,650 consecutive selectees and volunteers aged 18 to 45 years who appeared for final examinations at the Boston Induction Center prior to army induction. The incidence of glycosuria in this group was 0.8 per cent, or 367 cases. The glycosurias were classified into three groups; there were (*a*) 208 cases of diabetes mellitus, (*b*) 126 cases of transient glycosuria and (*c*) 33 cases of renal glycosuria.

Renal glycosuria is regarded as a rare disorder. Joslin and his associates [1] found 62 cases of renal glycosuria, including 9 cases of renal glycosuria of pregnancy, among 18,000 cases of mellituria. Fitz [2] reported that the compiled records of the Massachusetts General Hospital and Peter Bent Brigham Hospital for the last decade showed the diagnosis of renal diabetes only 36 times. Fowler [3] discovered only 7 cases of renal glycosuria among 4,000 cases of mellituria at the Montreal General Hospital, while Wilder [4] noted 82 cases at the Mayo Clinic. Falta [5] in Vienna believed the condition was not so uncommon, but a number of cases he reported as renal glycosuria present rather high blood

Sergeant Lowell V. Kingsley gave assistance.
From the Boston Recruiting and Induction Station.
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1. Joslin, E. P.; Root, H. F.; White, Priscilla, and Marble, Alexander: The Treatment of Diabetes Mellitus, ed. 7, Philadelphia, Lea & Febiger, 1940, p. 714.
2. Fitz, Reginald: Renal Diabetes, Oxford Medicine, edited by H. A. Christian, New York, Oxford University Press, vol. 4, part 1, p. 178 (13).
3. Fowler, A. F.: Renal Glycosuria, Ann. Int. Med. **7:** 518 (Oct.) 1933.
4. Wilder, R. M.: Clinical Diabetes Mellitus and Hyperinsulinism, Philadelphia and London, W. B. Saunders Company, 1940, p. 28.
5. Falta, W.: Renaler und insulärer Diabetes, Berlin and Vienna, Urban & Schwarzenberg, 1930, p. 45.

sugar curves, which we would diagnose mild diabetes mellitus. It was observed more commonly in Scotland by the Peels,[6] who disclosed 30 cases of renal glycosuria among 115 recruits with mellituria.

In our series of 367 cases of glycosuria, renal glycosuria appeared so frequently that a study of this disease appeared of considerable practical importance.

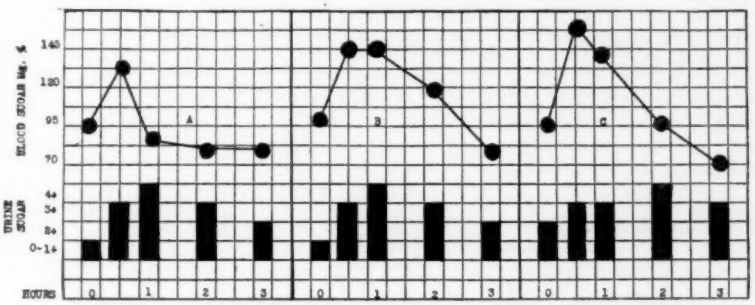
PLAN OF INVESTIGATION

The men who appeared for final examinations before being inducted into the army were those who did not have gross disqualifying defects detected without instruments, those who were not confined to institutions and who did not have known syphilis. All men had thorough physical and mental examinations, x-ray examinations of the chest and urine examinations. The test for sugar in the urine was made with Benedict's solution. Two drops of urine were placed in 1.5 cc. of Benedict's qualitative solution and boiled for five minutes. If the urine was sugar free, the solution remained clear blue; if sugar was present the color varied from an opaque green to brick red, with a precipitate depending on the concentration of sugar in it. The qualitative amounts of sugar in the urine were indicated according to the color by 1 + for green, 2 + for yellow, 3 + for orange and 4 + for brick red. If repeated urine examinations showed sugar and no verified history of diabetes was obtained, the men were sent to an army hospital for sugar tolerance tests. A standard dose of 100 Gm. of dextrose was employed and was ingested after the subject had fasted overnight. The concentration of sugar in the blood and urine was determined in specimens taken during fasting and at intervals of one-half, one, two and three hours after the ingestion of the dextrose. The determination of the blood sugar was made on 2 cc. samples of venous blood according to the method of Folin and Wu.[7] Here the test for sugar in the urine was made with 8 drops of urine in 5 cc. of Benedict's qualitative solution. In addition, various other studies were made on certain clinical features of the disease.

RESULTS

The diagnosis of renal glycosuria was made when the subject had a normal blood sugar curve and specimens of urine contained varying amounts of sugar after the ingestion of 100 Gm. of dextrose. Some of the fasting urine specimens were recorded as sugar free at times. Typical examples of these cases are shown in the accompanying chart. In 20 of these cases the peak of the blood sugar curve was below 140 mg. per hundred cubic centimeters, in 4 cases the maximum rise was 150 mg. per hundred cubic centimeters and in 9 cases the maximum level was approximately 160 mg. per hundred cubic centimeters after the ingestion of the standard dose of the dextrose.

Glycosuria occurred in all cases at a blood sugar level of 110 mg. per hundred cubic centimeters or less and in some cases the level was as low as 75 mg. per hundred cubic centimeters. Although some authors define renal glycosuria as a persistent glycosuria with normal blood sugar curves, we considered our criteria satisfactory. The difference in our results and theirs appeared too great to be explained simply on the basis of the variation in the diagnostic criteria. However, it was interesting that our investigation and that of the Peels were made on recruits with mellituria and in both of these there was a high incidence of renal glycosuria.



Illustrations of sugar tolerance results obtained in renal diabetes following the ingestion of 100 Gm. of dextrose. *A* represents 13 cases, *B* 11 cases and *C* 9 cases.

CLINICAL FEATURES

Age.—Renal glycosuria may be recognized at any period from infancy to old age. However, the age of the persons in our group was of considerable interest because renal glycosuria occurred predominantly in the younger selectees in contrast to true diabetes, which appears chiefly in the older persons. Twenty-three, or 70 per cent, of the men were 20 to 29 years of age, while 10, or 30 per cent, were 31 to 44 years of age, as shown in table 1. In comparison approximately 59 per cent of the men examined here were 20 to 30 years old, while 41 per cent were 31 to 45.

Family History of Diabetes.—The familial incidence of this type of glycosuria has been pointed out by a number of writers, such as Brown and Poleshuck.[8] Twenty-two persons with renal glycosuria were questioned concerning their family history of diabetes. Of these, 7 persons, or 32 per cent, gave a family history of diabetes, which appeared in only 1 member of the family in all instances. It is not known whether the familial cases were true diabetes or renal glycosuria, since the history was based on the person's statements. Although this group is small the findings appear significant when compared with that of a control group. In the controls 2,293 consecutive nondiabetic selectees were interviewed and 119 persons, or 5.2 per cent, gave a family history of diabetes, which occurred in all cases in 1 member of the family.

Occupation.—The occupation was studied in 22 cases of renal glycosuria. In 15 cases the work was laborious with such occupations as machinists, truck helper, sheet metal worker, pipe fitter, carpenter, welder and day laborer. In 7 cases there were sedentary occupations, as salesman, timekeeper, shoe dealer, taxi driver and 3 clerks. These men had lived in the rural as well as the urban districts.

Marital State.—The marital state was known in 21 cases. Sixteen persons were single, 4 were married and 1 was separated.

Nationality.—The nationality or racial origin of these 33 men was studied. The racial origin as ascertained in 20 instances in which the parents were foreign born was 7 Irish, 2 French, 2 German, 2 Jewish, 1 Italian, 1 Greek, 1 Portuguese, 1 African, 1 Scotch and 2 of

6. Peel, Albert A. F., and Peel, Mary W.: Glycosuria in Recruits, Glasgow M. J. **135**: 141 (May) 1941.

7. Folin, Otto, and Wu, Hsien: A System of Blood Analysis: Supp. 1, A Simplied and Improved Method for Determination of Sugar, J. Biol. Chem. **41**: 367 (March) 1920.

8. Brown, M. S., Jr., and Poleshuck, Rubin: Familial Renal Glycosuria, J. Lab. & Clin. Med. **20**: 605 (March) 1935.

doubtful extraction. Some of these men were not born in this country. The other 13 persons came from families who had been in this country for a number of generations.

Symptoms.—None of these men had any symptoms related to the glycosuria. In fact they were physically a very healthy group with no complaints. The blood pressures were normal except in 1 case, in which it was 170/110. The known duration of the glycosuria was of interest because 31 of the 33 men never knew they had the disorder before this examination. Two youths aged 21 and 22 had sugar in the urine, which was found on routine examinations five and two years before respectively.

Height and Weight.—The heights of these men ranged from 62 to 74 inches (157.5 to 188 cm.) and the weights from 113 to 229 pounds (51 to 104 Kg.). The average height without shoes was 68 inches (173 cm.). This measurement did not differ significantly from the average height with shoes for males of 68¼ inches (173 cm.) based on insurance data.[9] They appeared to have a normal distribution in regard to height, and most of them were between 66 and 70 inches (168 and 178 cm.) tall.

TABLE 1.—*Ages of Thirty-Three Patients with Renal Glycosuria*

Age, Years	Number of Cases
20-25	17
26-29	6
31-34	3
38-44	7

TABLE 2.—*Status of Weight of Thirty-Three Persons with Renal Glycosuria*

Number of Cases	Weight According to Height and Age—Army Standard [10]
12	7 to 14 pounds underweight
5	22 to 33 pounds underweight
14	Normal weight
2	43 to 64 pounds overweight

In contrast to diabetic patients who are generally overweight, persons with renal glycosuria in this group were usually of normal or subnormal weight according to army standards [10] as shown in table 2. One half of them were 7 to 33 pounds (3 to 15 Kg.) underweight, while 14 were of normal weight. Weights which usually ranged from 3 pounds (1.3 Kg.) below to 7 pounds (3.2 Kg.) above the army standards for height and age were called normal. Two men were 43 to 64 pounds (19.5 to 29 Kg.) over the standard weight, although they were only 8 to 26 pounds (3.6 to 12 Kg.) above the maximum standard. Their heights were 74 and 70½ inches (188 and 178 cm.) and weights 216 and 229 pounds (98 and 104 Kg.) respectively. In a further control study the weight according to height of 1,000 consecutive selectees was compared with the army standards and was found to be almost identical with them. There was no definite history of weight loss.

X-Ray Examinations of Lungs.—X-ray examinations of lungs were made in all these cases of renal glycosuria and in no case was there any active tuberculosis. The results were entirely normal in 32 cases. In 1 case there was a healed primary complex of the left lung.

COMMENT

Renal glycosuria is considered to be a rare condition even among the general run of cases of mellituria. In this study there was the high incidence of 33 cases of this disorder as proved by sugar tolerance tests in 367 consecutive persons with glycosuria between the ages of 18 to 45 years, as compared with the low incidence in the experience of others. It was unusual to find such a large percentage of these cases, although the Peels obtained similar results in recruits. In other words there was 1 case of renal glycosuria in approximately every 11 persons who showed sugar in the urine at this induction center. This finding is of great practical importance in the management of glycosurias from the point of view of diagnosis, treatment and prognosis. There are many people with glycosuria who are treated for diabetes mellitus without having had blood sugar determinations or sugar tolerance tests. If our results could be applied to the general population between the ages of 18 to 45 years it would mean that many patients with glycosuria are being treated needlessly for diabetes mellitus when they may be having renal glycosuria. This is important because diabetic treatment in renal glycosuria has been considered unnecessary since the restriction of carbohydrate in the usual diabetic diet has no appreciable effect on renal glycosuria. Perhaps, with the loss of sugar in the urine, patients with renal glycosuria who are especially underweight should have an increased amount of carbohydrate in the diet. On the other hand, they should have prolonged and periodic observations particularly because of the strong history of diabetes in these cases.

The prognosis is good with normal life expectancy, although the condition appears to be chronic without symptoms. The disease apparently does not progress to diabetes mellitus according to Joslin and his associates,[1] Fitz [2] and Wilder.[4] In their large experience they have never seen a case of renal glycosuria in which true diabetes developed, although it has been suggested by others. The pathology of renal glycosuria is not known because no autopsy in such a case has been reported. However, there is evidence of a physiologic defect in the renal tubules. Friedman and his associates [11] studied the renal blood flow, glomerular filtration rate and the degree of tubular reabsorption of dextrose in renal glycosuria using the diodrast and inulin clearance tests. They found the effective renal blood flow and glomerular filtration to be normal in renal glycosuria. On the other hand, they noted a diminished tubular reabsorption of dextrose in renal glycosuria which did not appear to be due to any organic kidney defect, for at plasma dextrose levels above 200 mg. per hundred cubic centimeters the efficiency of tubular reabsorption of dextrose in these cases equaled or exceeded that found in nonglycosuric persons.

SUMMARY

A study was made of 33 cases of renal glycosuria which occurred in 367 cases of mellituria found in 45,650 consecutive men aged 18 to 45 years who appeared for final examination at the Boston Induction Station.

9. Medical Impairment Study, Actuarial Society of America and Association of Life Insurance Medical Directors, New York, 1929, p. 138.
10. Army Regulations No. 40-105, War Department, Washington, D. C., Oct. 14, 1942.
11. Friedman, Meyer; Selzer, Arthur; Sugarman, Jerome, and Sokolow, Maurice: The Renal Blood Flow, Glomerular Filtration Rate and Degree of Tubular Reabsorption of Glucose in Renal Glycosuria, Am. J. M. Sc. **204**: 22 (July) 1942.

Renal glycosuria appeared predominantly in the younger selectees, 23 being 20 to 29 years of age, while 10 were 31 to 44 years of age. A family history of diabetes was obtained in 32 per cent of those questioned on this point in contrast to 5.2 per cent in a nondiabetic group. The occupations of most of these men were of a laborious nature.

There were no symptoms referable to the disease. In all of these cases, renal glycosuria was found on routine examinations. The average heights were normal, whereas in all but 2 cases the weights were either normal or subnormal.

The finding of 1 person with renal glycosuria in approximately every 11 with mellituria here was unusual and important from the standpoint of diagnosis, treatment and prognosis. It is urged that all persons with glycosuria have sugar tolerance tests or nonfasting blood sugar determinations made in order to rule out renal glycosuria, because diabetic treatment has been considered unnecessary in this condition. Nevertheless, persons with renal glycosuria deserve periodic and prolonged observations especially because of the strong family history of diabetes in these cases.

Our observations strongly suggest that renal glycosuria is a symptomless, not uncommon, clinical entity which may follow a definite pattern as to age and weight and merits more extensive study.

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Clinical Notes, Suggestions and New Instruments

LEWISITE BURNS OF THE EYE

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It is generally presumed that much of the incapacitation resulting from exposure to lewisite will be due to lesions of the eye, as has been the case with mustard gas. Because of the importance of this subject at the present time and the apparent absence of similar case reports previously, 2 instances are described in which ocular lesions occurred following exposure to lewisite under field conditions.

EXPOSURE AND INCIDENCE

The exposure occurred in the early afternoon in mid-January. The temperature was 25 F., and there was considerable wind. An ampule containing 100 cc. of 5 per cent lewisite in chloroform was exploded at a distance subsequently measured as 50 to 80 feet from a group of 33 observers in an open field. The observers were standing down wind to the explosion. Within a few minutes after the explosion, pieces of indicator paper which the observers were holding in their hands were said to have shown droplets indicating the presence of liquid lewisite.

Of the 33 in the group, 19 developed cutaneous lesions and 2 ocular lesions; 10 noted lacrimation.

REPORT OF CASES SHOWING OCULAR LESIONS

CASE 1.—L. D., a man aged 46, with no antecedent ocular disease and no previous exposure to lewisite or mustard gas, complained of severe burning of the eyes and involuntary spasm of the lids within a few seconds after the explosion. Epiphora was prompt and copious, "the tears wetting the collar." No odor was detected.[1] Owing to the irritant nature of the gas, the patient believed that he was being exposed to tear gas and therefore did not apply for treatment for ten minutes. At this time both eyes were washed copiously (two minutes to each eye, repeated two or three times) with water from a drinking fountain, followed by a single irrigation of sodium bicarbonate solution. The latter is said to have decreased the discomfort. However, a fairly severe foreign body and burning sensation with attendant epiphora and blepharospasm persisted for approximately twelve hours. The symptoms were most severe within a few minutes after the exposure.

Examination ten hours after the explosion showed a diffuse papular eruption of the forehead, eyelids and cheeks. The ocular manifestations were similar in the two eyes. The lids were moderately edematous. The conjunctivas were not edematous but the pericorneal vessels were dilated, producing a violaceous flush over the ciliary region. There were six or seven separate lesions in the lower halves of both corneas. These were all superficial and appeared with the biomicroscope to be limited to the epithelium. The larger two formed branched lines about 1 mm. in length (similar to lesions in early dendritic keratitis). The smaller lesions consisted of numerous gray dots producing a picture of keratitis epithelialis. There was no extensive loss of epithelium but all lesions stained locally with fluorescein. Neither infiltrates nor epithelial edema was detectable except immediately adjacent to the dendritiform lesions. Corneal sensitivity, as determined with a wisp of cotton, was normal. The anterior chambers were clear and no evidence of iritis was present. The fundi were normal.

Five per cent sulfadiazine ointment was placed in both eyes once. The patient was again examined twenty-three hours after the initial exposure. Subjectively the eyes were considerably improved. The edema of the lids and the dilatation of ciliary blood vessels were less noticeable. The corneal lesions showed no change that was apparent with the biomicroscope and still stained with fluorescein. The eruption of the face was less pronounced and caused less subjective burning than previously.

The patient was not further treated. He was again examined forty-eight hours after the initial exposure. Symptomatically he was entirely well. The eyes were grossly normal. With the biomicroscope a faint haze could be seen in the superficial stroma corresponding to the former dendritiform lesions but there was no staining with fluorescein. Two weeks later the patient reported that he had had no recurrence of symptoms.

CASE 2.—B. A., a man aged 34, had no antecedent ocular disease and no previous exposure to lewisite or mustard gas. As in case 1 a sensation of severe burning, spasm of the lids and lacrimation occurred within a few seconds after the release of the gas. No odor was detected [1] and the patient believed the irritant to be tear gas. About ten minutes after the exposure the eyes were irrigated several times with water. Except during and immediately after the exposure, the only symptoms were occasional foreign body sensation and slight blurring of vision with the right eye.

Examination ten hours after the explosion showed a diffuse papular eruption of the forehead. The lids of the right eye were slightly edematous and those of the left normal. The pericorneal vessels on the right were slightly dilated. In the pupillary area of the right eye there was a superficial linear opacity about 2 mm. in length which was seen with the biomicroscope to be made up of thirty to fifty tiny white dots. These dots stained individually with fluorescein. Epithelial edema was not noted. Corneal sensitivity was normal. The left eye was entirely normal. The right eye was treated with a single instillation of 5 per cent sulfadiazine ointment.

When reexamined twenty-three hours after the initial exposure, the edema of the lids had disappeared. The patient was asymptomatic. The appearance of the corneal lesion had not changed and still stained with fluorescein. The patient was not examined again but two weeks later reported that he had had no further symptoms.

COMMENT

The ocular effects in these 2 cases are of interest in comparison with lesions known to have occurred from mustard gas. Lewisite and mustard gas are the two vesicants which,

From the Howe Laboratory of Ophthalmology Harvard Medical School. Approved for publication by Milton C. Winternitz, M.D., Chairman of Committee on the Treatment of Gas Casualties.

1. Others in the group are said to have detected the characteristic odor of lewisite.

as far as information is available, are likely to be used in the present war, and both are notoriously toxic to the eye under laboratory conditions. Judging from observations limited to these 2 cases, the most striking difference between lewisite and mustard gas in man is the time after the exposure at which the symptoms occur and the protective reflexes become operative. With a concentration of mustard gas comparable to that of lewisite in the exposures reported, no symptoms occur for several hours after the exposure, while in the case of lewisite irritation is practically immediate. Indeed, both patients believed that they were being exposed to tear gas. This difference may well be of major importance. Owing to its nonirritative nature, mustard gas may be absorbed into the cornea over a considerable time, resulting in a cumulative effect. Lewisite, on the other hand, elicits prompt irrigation by tearing, lessening of further contact by blepharospasm and, most important, the painful awareness of noxae in the area. It seems altogether likely that this difference in reaction accounts in large measure for the apparent difference in severity of the ocular manifestations resulting from the exposure to the two gases.

SUMMARY AND CONCLUSIONS

1. In 2 instances of ocular lesions in man resulting from exposure to lewisite droplets and gas the chief manifestations were in the superficial cornea and resulted in no permanent damage.

2. An important difference between exposure to lewisite and mustard gas in man is the fact that one is promptly irritating and evokes prompt protective reflexes, while the other does not.

3. This difference would seem to account for the relative mildness of the ocular lesions from lewisite in the foregoing instances.

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NAIL POLISH DERMATITIS

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Because of an apparent increased incidence of nail polish dermatitis and because the condition is so frequently not recognized, we venture again to call it to the attention of the profession.

Within a period of twenty-three days recently we have seen 25 cases. None of these had been recognized. The condition varied in duration from a few days to several months. A representative percentage of the group of patients had been under dietary and other internal forms of treatment, including that directed toward "acidity." The majority of these patients presented a simple dermatitis with edema of the eyelids associated with a dermatitis of varying severity involving the neck. Several presented areas of dermatitis over the shoulders where contact was made in the adjusting of shoulder straps. The patches developed on the thighs where contact was made by the patient pulling down her girdle while dressing. Two instances were noted on the legs below the knees where liquid nail polish had been applied to stop runners in stockings. One patient had a patch of dermatitis on the forearm where contact was made by flexion with a patch test above the elbow.

Both colored and clear polishes were found to be at fault, but naturally most outbreaks were traced to the tinted brands. Seven different manufacturers were represented, and the very expensive brands were quite as frequently at fault as the cheaper ones. One representative manufacturer assured us that attempts to identify and eliminate the offending fraction would not be practical at present because of the extreme variation in composition of different lots of basic materials.

All cases were proved by patch tests. It was frequently difficult to convince patients of the source of their trouble, and they were loath to eliminate liquid nail polish. It seems advisable to point out that we frequently found it necessary to continue the patch tests for several days to produce a positive reaction. All cases cleared promptly following discontinuance of liquid nail polish and the application of soothing agents.

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AN IMPROVISED "FIELD" POTAIN ASPIRATOR

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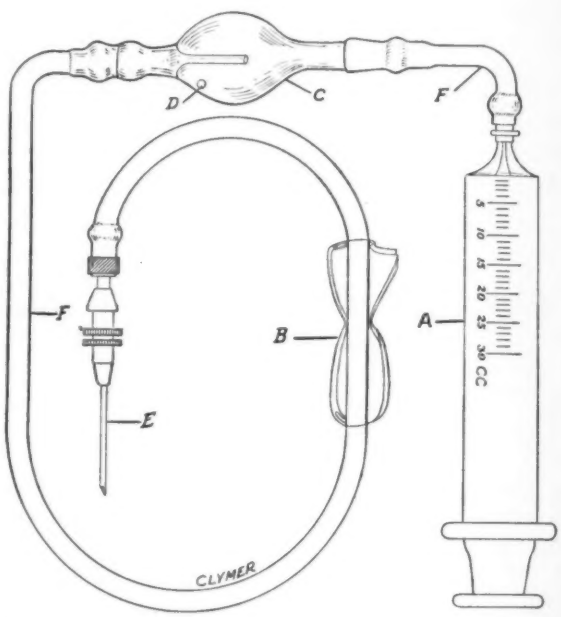
Actual field conditions in the Army of the United States often demand the improvision of an apparatus that ordinarily is found on the shelf of any surgical supply store on the home front.

Shortly after we set up a tent hospital in the field "somewhere in Persia," a patient with a large pleural effusion was admitted. The clinical diagnosis was confirmed by an x-ray examination of the chest, which revealed a large left pleural effusion with displacement of the heart to the right. Only part of our equipment had as yet arrived; no Potain or other aspirating set was available and there were no glass Y or T tubes with which to make a set.

It occurred to me that a closed system aspirator might be made, utilizing rubber tubing, a pinch clamp, a syringe and a Murphy type intravenous drip tube. This material had just been made available from the set accompanying human plasma given to a patient in shock.



Improvised "field" Potain aspirator. *A*, syringe; *B*, pinch clamp; *C*, Murphy type intravenous drip tube; *D*, hole in tube; *E*, needle; *F*, rubber tubing.

The apparatus was set up as illustrated in the diagram. With the pinch clamp *B* closed, the needle *E* is inserted into the pleural cavity. The finger of the operator then is held over the hole *D* in the Murphy drip tube *C*, the pinch clamp *B* opened and an assistant withdraws the barrel of the syringe *A*, thus filling the system and syringe with fluid from the pleural cavity. When the barrel of the syringe is full, the operator closes the pinch clamp *B*, removes his finger from the hole *D* in the drip tube and the assistant pushes down on the plunger of the syringe, thus forcing the aspirated fluid through the hole in the drip tube into a collecting basin. This process is repeated until the fluid is aspirated from the pleural cavity.

In the case in question, 1,675 cc. of fluid was removed with ease in no more time than is ordinarily taken with a standard apparatus. An x-ray examination of the chest after the paracentesis did not reveal the presence of any air in the pleural cavity and most of the fluid had been removed.

The material necessary to make the apparatus is usually available in the smallest hamlet or with any field medical corps.

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Special Article

HANDBOOK OF NUTRITION: XVI.

IMPROVING THE QUALITY OF CHEAP STAPLE FOODS

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These special articles on foods and nutrition have been prepared under the auspices of the Council on Foods and Nutrition. The opinions expressed are those of the authors and do not necessarily reflect the opinion of the Council. These articles will be published later as a Handbook of Nutrition.—ED.

Discoveries in the science of nutrition over the past three decades have made it possible to state more exactly than ever before the many specific factors that are essential for satisfactory nutrition. A brief classification of them would include food energy, the protein factor, essential fatty acids, indispensable mineral nutrients and the vitamins. An attempt to list individually all the substances required gives a total of approximately forty, the exact number depending on whether the claims for the existence of certain factors are to be accepted or not. In view of this new knowledge it is obvious that foods can now be evaluated in a manner much more precise and specific than was ever possible before. These recent discoveries have also included the isolation and finally synthesis on a commercial scale of several of the vitamins, thus making it possible to add these factors to foods. Such possibilities have naturally received the attention of both the food industry and students of nutrition and public health. On the industrial side it has been necessary to solve many technological problems. Nutritionists, clinicians and governmental agencies faced with these possibilities have naturally interested themselves in the formulation of principles to be followed in such addition of special factors to foods, amounts to be added and related topics.

The application of these new discoveries can of course result in the production of new foods that would doubtless be classified for some time at least as novelties or specialties because of their relatively high cost and only slight use by the mass of the population. In contrast to this, and much more important for public health and preventive medicine, is the application that means definite improvement in the quality of cheap staple foods that occupy prominent places in the dietary. To the extent that these staples, already endowed with a high consumer appeal and acceptance, can be nutritionally improved, the chances of incidence of diseases that represent dietary shortcomings can be reduced and the cause of public health thus advanced. This article deals with the latter possibility.

THE GRAINS

Discussions of the foods that figure prominently in various dietaries throughout the world, therefore staple foods,[1] usually deal with them in terms of their contribution to the energy needs of the population. The cheapest source of food energy in the diets used throughout the world is the cereal grains. In the United States the two cheapest sources of calories are cereal products and cane sugar. In southern China and certain other parts of the Orient rice is the most economical and readily available food and therefore the most widely used cereal. From the standpoint of worldwide use rice comes first; this cereal is eaten by more people than any other member of the cereal grain group. The dominant cereal used as human food in the United States is wheat.

The greater keeping qualities of milled cereals in contrast to the whole grain, together with the exigencies of modern civilized life such as ease of transportation over long distances, has resulted in some degree of milling of the grain becoming the established custom, a practice which, from the standpoint of nutritive value of the material, means loss in corresponding degree. It is not surprising, therefore, that the addition of essential vitamins and minerals to milled cereal products, wheat flour for example, should have received serious attention as one of the new possibilities for application of modern nutritional knowledge in the interest of preventive medicine.[2]

TABLE 1.—*Current Standards for Enrichment and Fortification of Foods*

Enriched White Flour[3] (Required):	
Thiamine	From 1.66 to 2.5 mg. per pound
Riboflavin	From 1.2 to 1.8 mg. per pound
Nicotinic acid (niacin) or its amide	From 6 to 24 mg. per pound
Iron	From 6 to 24 mg. per pound
Enriched White Flour (Optional):	
Vitamin D	From 250 to 1,000 U. S. P. units per pound
Calcium	From 500 to 2,000 mg. per pound
Wheat germ	Not more than 5 per cent
Oleomargarine Fortified with Vitamin A (Federal Register 6: 2761 [June 7] 1941):	
Not less than 9,000 U. S. P. units of vitamin A per pound	
Milk Fortified with Vitamin D:	
Council on Foods and Nutrition of A. M. A. approves milk containing from 135 to 400 U. S. P. units per fluid quart or reconstituted quart	
Iodized Table Salt:	
Council on Foods and Nutrition of A. M. A. accepts salt containing 0.01 per cent of potassium iodide or equivalent of sodium iodide, provided distribution of the iodide in the salt is uniform and this concentration is present after storage under ordinary conditions. Food and Nutrition Board of National Research Council also has approved of this standard	

Table 1 also gives current standards for enrichment or fortification of other foods.

Enforcement of the regulation with respect to enrichment of flour with riboflavin has been delayed because of shortage of this vitamin owing to lack of satisfactory methods for production of it on an industrial scale. Until this problem has been solved, riboflavin will be too expensive and difficult to secure to warrant making

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1. Bennett, M. K.: Wheat in National Diets, Wheat Studies of the Food Research Institute, Stanford University **18**: 37-76 (Oct.) 1941.

2. Cowgill, G. R.: The Need for the Addition of Vitamin B_1 to Staple American Foods, J. A. M. A. **113**: 2146-2151 (Dec. 9) 1939.

3. Definitions and Standards of Identity for Flour and Related Products, Federal Register **6**: 2574-2582 (May 27) 1941.

its addition compulsory. Progress toward solution of this problem has been made, however.[4]

Discussion of this "enrichment" or fortification problem has brought out many suggestions of principles and facts to be considered when making additions of vitamins and minerals to foods.[4a] It is pertinent to inquire whether a lack of the dietary essential in question in the ordinary diet of the people is sufficiently widespread to justify the proposed addition of it to appropriate foods. If no real need for such addition can be shown, one may well question the wisdom of it as a socially planned and directed move; its chief justification then becomes a commercial one dependent for its success almost entirely on advertising and other promotional activities of units of the food industry.

If there are reasonable grounds for believing that a serious deficiency of the dietary factor of interest does exist, the question arises as to the most suitable food to be "enriched" or fortified with it. There may be rather general agreement as to the class of food to be enriched, but it does not necessarily follow that all products in this class should be so treated. As an example of this situation consider macaroni, which is made largely of wheat flour. Macaroni is always boiled when being prepared for the table, and tests have shown that such handling results in loss of roughly 50 per cent of added vitamin B_1. Therefore, even if the pure vitamin can be obtained at practically negligible cost, so that relatively large amounts more than sufficient to offset such loss can be added, one may well question the practicality of its addition to macaroni. As another example one may consider the fortification of lard with vitamin A. Since this animal fat is widely used in cooking and such use results in appreciable loss of the vitamin, a conservative attitude toward the question of the addition of vitamin A to lard is justified. In the light of these two illustrations it is obvious that a body of facts regarding the need for various dietary essentials and the probable supply in common foods is required, as well as information of the technological sort concerning the feasibility of the proposed addition to any given food product before approval should be given any specific proposal of enrichment or fortification.

TABLE 2.—*Important Food Values of Natural Grains and Upper Limits of "Restoration" for General Purpose Cereal Foods*

(Council on Foods and Nutrition, American Medical Association)

Product	Ca, Mg. per 100 Calories	Fe, Mg. per 100 Calories	Thiamine, Mg. per 100 Calories	Riboflavin, Mg. per 100 Calories	Niacin, Mg. per 100 Calories
"Restored" cereal	75	1.5	0.25	0.10	
Cornmeal	7.2	0.9	0.065	0.05	0.4
Oatmeal	26	1.2	0.24	0.05	0.4
Whole wheat flour	14.8	1.4	0.13	0.07	1.8

Concerning this question of need for particular dietary factors by the American people, numerous papers may now be cited. Students of nutrition have long agreed with Sherman that there is a real likelihood of a significant deficiency of calcium, and therefore there is justification for promoting wider use of calcium rich foods like milk, milk products and green leafy vegetables. There are also reasons for believing that the American diet is not as rich in thiamine as it should be.[2] The testimony offered in the hearings held by the Food and Drug Administration which resulted in the federal standards for enriched flour supported the view that the average American dietary does not furnish amounts of some essential vitamins and minerals sufficient to insure the public health. On the basis of the evidence they have summarized concerning the existence of malnutrition in our population, Jolliffe, McLester and Sherman[5] believe that such malnutrition is sufficiently widespread to justify taking measures to obviate it.

VITAMINS AND MINERALS

In 1939 the Council on Foods and Nutrition of the American Medical Association considered this general question of the addition of vitamins and minerals to foods and adopted the following statement as an expression of its policy:

> The Council on Foods desires to encourage the restorative addition of vitamins or minerals or other dietary essentials, in such amounts as will raise the content of vitamin or mineral or other dietary essential of general purpose foods to recognized high natural levels; with the provision that such additions are to be limited to vitamins or minerals or other dietary essentials, *for which a wider distribution is considered by the Council to be in the interest of the public health.*[6]

The words that I have italicized are particularly pertinent here, because they state an important limitation which not only the Council has adopted, when expressing its approval of such additions, but the Committee on Food and Nutrition (now Food and Nutrition Board) of the National Research Council as well.

In its approach to this problem the Council on Foods and Nutrition of the American Medical Association deemed it advisable to express the limitations of additions of various factors to general purpose foods in terms of milligrams per hundred calories and established such limitations with respect to calcium, iron, thiamine, riboflavin and niacin. The values are presented in table 2.

The Committee on Food and Nutrition of the National Research Council expressed its views on this question in the following resolution:

> WHEREAS, There exist deficiencies of vitamins and minerals in the diets of significant segments of the population of the United States which cannot promptly be corrected by public education in the proper choices of foods, be it resolved in order to correct and prevent such deficiencies:
>
> 1. That the Committee endorses the addition of specific nutrients to staple foods (as indicated under 6 below) which are effective vehicles for correcting the above deficiencies in the diets of the general population, or of significant advantage of geographic, economic or racial segments thereof;
>
> 2. That the Committee opposes the inclusion of additions of specific nutrients under definitions and standards which may be promulgated under the Food, Drug and Cosmetic Act, except in the case of foods which constitute such effective vehicles of distribution;

4. Glabau, C. A.: Riboflavin, a B Vitamin Soon Possibly to Become a Requirement for Enrichment, Bakers Weekly, July 27, 1942.

4a. The Fortification of Foods with Vitamins and Minerals. A Symposium held at the American Institute of Nutrition, Toronto, Ontario, April 26, 1939. Published in the Milbank Memorial Fund Quarterly **17:** 221-262 (July) 1939. American Institute of Nutrition, Symposium on Fortified Food, April 1, 1942. Published in Federation Proceedings **1:** 324-351 (Sept.) 1942.

5. Jolliffe, Norman; McLester, J. S., and Sherman, H. C.: The Prevalence of Malnutrition, J. A. M. A. **118:** 944-950 (March 21) 1942.

6. Annual Meeting of the Council on Foods, J. A. M. A. **113:** 680 (Aug. 19) 1939.

3. That the Committee favors unequivocally the fulfilment of the nutritional needs of the people by the use of natural foods as far as practicable and to that end encourages education in the proper choice of foods and the betterment of processes of food manufacturing and preparation so as to more fully retain the essential nutrients needed thereto;

4. That, to avoid undue artificiality of food, the Committee favors, whenever practicable, the choice, as vehicles for the corrective distribution of vitamins and minerals, of those foods which have suffered losses in refining processes and recommends that the vitamins and minerals added to such foods should preferably be the kinds and quantities native therein in the unrefined state;

5. That the addition of other than natural levels of vitamins and minerals to foods which are suitable as vehicles of distribution may be sanctioned when more natural routes are practically unavailable as ways to correct known nutritional deficiencies;

6. That, at present, the Committee favors appropriate enrichment of flour and bread (and perhaps corn meal), the fortification of milk with vitamin D, the suitable addition of vitamin A to table fats and of iodine to salt for dietary use. There is no information available to the Committee at the present time which indicates that it is desirable for the Committee to recommend the addition of vitamins or minerals to foods other than those named;

7. That, specifically, the Committee opposes the addition of synthetic vitamins to carbonated beverages and confectionery.

From the statement quoted it is evident that the idea of adding vitamins and minerals, or other dietary essentials, to foods has been accepted sufficiently to secure official sanction in the following cases: the appropriate enrichment of flour and bread (and perhaps other cereal products) with several factors, the fortification of milk with vitamin D, of table fats with vitamin A, and of table salt with iodine. To what extent other additions will finally acquire widespread acceptance and then official approval, only time and the accumulation of new data can determine.

When it has been agreed that certain dietary essentials may well be added to particular foods or classes of foods, the question arises as to how much should be added. The discussion of this problem has been most interesting to follow. It has been argued that a worthwhile principle to apply is that of restoration of the milled or processed food by appropriate addition of dietary factors to give a product approximating the natural food source, whole wheat flour for example as contrasted with highly milled white flour. This has been called the principle of restoration. Paragraph 4 of the statement of the National Research Council Committee is based on this idea of "restoration" of the milled product to something comparable to the natural one.

When a single dietary factor is being considered, this principle has much to commend it. For example, the processing of a fruit juice may result in appreciable loss of vitamin C, and products of this sort are normally very valuable as sources of this factor. The addition of ascorbic acid in amount sufficient to "restore" this particular processed juice to approximately the highest concentration characteristic of the natural juice would seem justifiable. The principle of restoration proves to be unsatisfactory, however, when the addition of more than one factor is being considered. In the case of ordinary wheat flour, for example, the addition of vitamin B_1 in amount sufficient to make the flour approximately equal to whole wheat with highest natural concentration means a significant addition of the restorative sort; a restorative addition of riboflavin (vitamin B_2) to the flour, however, means very little because the cereal grains are not good natural sources of this factor. If, therefore, riboflavin is nevertheless to be added to the flour in significant amounts, the addition means "fortification," because the enriched product will contain even more riboflavin than is found in the natural whole grain.

When several dietary factors are being added to a given staple food, some in accordance with the principle of restoration, others in accordance with fortification, one is not limiting oneself to making the staple processed food as nearly as possible like the natural source but frankly modifying it to make an entirely new product to meet a particular nutritive situation. Enriched flour is the prime example of this. In such a case it is evident that the proposed addition of several factors is best made in some relation to the human requirement for them, taking into account the other sources of supply available in the dietary and other pertinent considerations. It may be questioned whether there are very many staple foods that lend themselves as suitable vehicles for the wider distribution and intake of several dietary factors instead of only one or perhaps two. In view of this there may still be a place for operation of the principle of restoration in the improvement of numerous processed foods.

TABLE 3.—*Thiamine Content of Cereal Grains and Types of Wheat*

Milligrams per Pound *

Kind of Grain	Thiamine	Type of Wheat	Thiamine
Oats	2.20-4.90	Durum	2.10-3.80
Wheat	1.45-3.80	Hard spring	1.45-3.49
Barley	2.58-3.33	Hard winter	1.58-2.71
Corn	1.85-3.04	Pacific	1.76-2.44
Rye	1.88-2.28	Soft red	1.79-2.38

* Original data from Taylor,[7] who comments as follows: "These include analyses of pure varieties and nondescripts (more than random samples), commercial grades and ungraded, from good and poor crops, stored for short and longer periods, with different methods of assay. The significance spreads cannot be as wide as those given."

OTHER METHODS OF IMPROVING FOODS

The foregoing discussion has dealt with the ideas that have been advanced for improving staple foods by what might be called the artificial addition of dietary factors lost as a part of food processing. There are other ways of achieving the same objective that should be mentioned. One may select plant varieties on the basis of genetic constitution and vitamin content. It is known that varieties of wheat and other cereals differ considerably in their respective contents of thiamine. Data bearing on this topic have been summarized by Taylor [7] and are shown in table 3. In addition to illustrating the variation in thiamine content characteristic of cereal grains the data in table 3 emphasize a point frequently forgotten by those who argue that enrichment of flour is unnecessary, that the use of whole

7. Taylor, A. E.: Why Enrichment of Flour? Wheat Studies of the Food Research Institute, Stanford University **18**: 77-108 (Nov.) 1941. See particularly page 92.

grain flour is the answer to the basic problem being attacked. There is no such thing as a standard whole wheat flour with respect to "high natural level" of thiamine content. The adoption and wide use of a standardized enriched flour in contrast to a nondescript unstandardized whole wheat product has therefore some definite points in its favor.

Some staple foods of plant origin can be nutritively improved by the adoption of special methods of cultivation. At the present time we do not know all that we should like to know about the effects of various environmental factors on the vitamin and mineral content of important plants that we use as food. The subject is being actively investigated.[8] Exposure to sunlight, supply of special materials in the soil, water supply and similar factors require investigation. A food like the potato, which remains in the soil until harvested, is known to reflect in its iodine content the iodine concentration of the soil and water.[9] In an iodine survey of various sections of the state of South Carolina the iodine content of potatoes grown in the respective areas proved to be as good a criterion of iodine supply as analyses of water and soil. In dealing with a shortage of dietary iodine, obviously, then, one has several possibilities, namely (*a*) wider use of sea food, which is an excellent natural source of this element, (*b*) wide use of a root vegetable like the potato cultivated in an iodine enriched soil or water or (*c*) the fortification with iodine of a product such as table salt. The first two of these possibilities are impracticable for an inland area for obvious reasons yet valuable procedures in coastal regions; the inland area situation is more easily met by the use of iodized table salt.

Nutritive improvement of foods of animal origin like milk and its derivatives can be achieved in accordance with much the same principles. Milk is such a valuable food that nutritive improvement of it has not had very extensive consideration. Most of the discussion of this topic has centered around the use of fortified milk as a means of increasing the supply of vitamin D to growing children and thus improving the utilization of its calcium. Vitamin D milk may be obtained by direct addition to the milk of a concentrate of the vitamin, with such products differing merely in the source of the concentrate added; such a milk is obviously a "fortified" one. Vitamin D may also be added to the milk through the metabolism of the cow by feeding a product like irradiated yeast, which contains the vitamin. This amounts to affecting the environment in which the milk is produced.

The addition of vitamin A to milk or its fat derivative butter has received some attention. The vitamin A content of butter is known to vary with the season, being low in winter and high in summer.[10] The development of a butter more uniform in vitamin A content is a worthy objective of the butter industry that has apparently had less attention than it deserves; such a product would be the logical one with which to meet the competition offered by vitaminized oleomargarine. Vitamin A concentrates could of course be added to winter butter. In view of recent experiments by Deuel and his associates,[11] there is presented the possibility of significantly enriching cow's milk with vitamin A by feeding certain extremely concentrated preparations of the vitamin. Improved feeding of cows during the winter season constitutes another approach to solution of this question.

From this brief discussion it should be evident that by improving the quality of cheap staple foods it is possible to affect the public health in many important ways. The success which attends this method will obviously depend on several factors. One is the extent to which the consumer is made aware of the values of the improved product when it is in the market competing with the older unimproved but accepted food. The solution of this problem lies in consumer education, and in this work the physician can do much because of his influential position in the community. If the improved product can be given a favored status of some sort, its use will of course be increased. South Carolina and Louisiana have passed laws requiring all white flour sold in their respective domains to be of the enriched variety. Louisiana has also passed a law requiring that all oleomargarine offered for sale contain vitamin A. It is possible that still other states will follow the lead of South Carolina and Louisiana in these respects. This way of achieving greater consumption of a desired product has certain shortcomings as well as advantages. In the case of enriched flour used in these Southern states the advantages are believed greatly to outweigh the disadvantages, because in enriching its flour the milling industry has tended to enrich only the more expensive brands; it is especially important that the enriched flour be used extensively by the lower income groups of the population who have the least money to pay for the improved product. It is to the credit of the milling industry that it has sought to bring about by voluntary means the enrichment of all its staple flour by every unit of the industry. The enactment of laws to solve problems always poses of course some additional problems of effective enforcement and the like; whether a law will be readily accepted, no matter how desirable it may be from a strictly scientific point of view, depends on a sufficient number of the people being properly informed and convinced of its value. Thus we are brought around once more to the fact that the fundamental solution of our basic problem lies in effective education of the general public with respect to the principles of nutrition, food values and related topics. Given the proper education in these matters, the general public will naturally prefer more and more the improved staple foods over those that are not improved; the extent to which this occurs will very largely determine the role that this particular application of modern knowledge in nutrition plays in promoting the public health.

333 Cedar Street.

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Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

AUSTIN E. SMITH, M.D., Secretary.

DIETHYLSTILBESTROL (See the Supplement to New and Nonofficial Remedies, 1942, p. 26).

The following dosage forms have been accepted:

JOHN WYETH & BROTHER, INC., PHILADELPHIA

Ampoules Diethylstilbestrol (in corn oil), 0.5 mg. per cc.: 1 cc.

Ampoules Diethylstilbestrol (in corn oil), 1.0 mg. per cc.: 1 cc.

Tablets Diethylstilbestrol: 0.1 mg. and 0.5 mg.

Suppositories Diethylstilbestrol: 0.1 mg. and 0.5 mg.

THE LAKESIDE LABORATORIES, INC., MILWAUKEE

Tablets Diethylstilbestrol: 0.1 mg.

THE UPJOHN COMPANY, KALAMAZOO, MICH.

Capsules Diethylstilbestrol: 0.1 mg., 0.5 mg. and 1.0 mg.

Ampoules Sterile Solution Diethylstilbestrol (in vegetable oil, 0.5 mg. per cc.: 1 cc.

Ampoules Sterile Solution Diethylstilbestrol (in vegetable oil), 1.0 mg. per cc.: 1 cc.

Suppositories Diethylstilbestrol (Juvenile Size): 0.1 mg.

Suppositories Diethylstilbestrol (Adult Size): 0.5 mg.

E. R. SQUIBB & SONS, NEW YORK

Tablets Diethylstilbestrol: 0.1 mg., 0.5 mg., 1.0 mg. and 5.0 mg.

Ampuls Diethylstilbestrol (in corn oil), 0.2 mg. per cc.: 1 cc.

Ampuls Diethylstilbestrol (in corn oil), 0.5 mg. per cc.: 1 cc.

Ampuls Diethylstilbestrol (in corn oil), 1.0 mg. per cc.: 1 cc.

Ampuls Diethylstilbestrol (in corn oil), 5.0 mg. per cc.: 1 cc.

Diethylstilbestrol Pessaries: 0.1 and 0.5 mg.

TETANUS TOXOID.—Tetanus Toxoid is a sterile solution of the product of growth of the tetanus bacillus (Clostridium tetani) so modified by treatment with solution of formaldehyde as to have lost the ability to cause toxic effects in guinea pigs but retaining the property of inducing active immunity.

The toxicity of Tetanus Toxoid shall be so low that 5 cc. of the material does not cause any symptoms of tetanus in a guinea pig within a period of twenty-one days after its injection into the animal. The antigenic value shall be such that 1 cc. of the material six weeks after injection shall protect at least 80 per cent of guinea pigs from all symptoms of tetanus for a period of ten days after the injection of 10 minimum lethal doses of tetanus test toxin into each animal.

Actions, Uses and Dosage.—To protect against infection, three doses of 1 cc. each intramuscularly or subcutaneously with an interval of three weeks between injections. An additional dose of 1 cc. should be given at the time of injury or infection.

LEDERLE LABORATORIES, INC., PEARL RIVER, N. Y.

Tetanus Toxoid *(Fluid):* 1 cc. and 30 cc. vials in packages of one 1 cc. vial, three 1 cc. vials and one 30 cc. vial.

SODIUM BENZOATE.—"When dried at 100 C. for six hours, contains not less than 99 per cent of C_6H_5COONa." U. S. P.

Actions and Uses.—The intravenous use of sodium benzoate as a liver function test was suggested by Quick and his co-workers in 1938 (Quick, A. J.; Ottenstein, H. N., and Weltcheck, Herbert: *Proc. Soc. Exper. Biol. & Med.* **38**:77 [Feb.] 1938) to overcome the disadvantages associated with its oral administration. In the presence of normal liver function in man, benzoic acid is excreted as hippuric acid. The rate at which this material is excreted determines the functional ability of the liver and often demonstrates the presence of liver damage before clinical signs are evident.

The test is contraindicated in the presence of renal disease, because here the hippuric acid is but partially eliminated.

Dosage.—The bladder is emptied before administration of the drug. Inject *slowly*, intravenously, 20 cc. of sodium benzoate solution containing 1.77 Gm. of the salt (equivalent to 1.5 Gm. of benzoic acid), using not less than five minutes for the injection. Exactly one hour after the injection a complete urine specimen is collected and the amount of hippuric acid determined by the method developed by Quick (Quick, A. J.: *Am. J. Digest. Dis.* **6**:716 [Dec.] 1939).

An adult with a normal liver will excrete at least 1 Gm. of hippuric acid (equivalent to 0.68 Gm. of benzoic acid) within one hour after receiving sodium benzoate intravenously.

GEORGE A. BREON & COMPANY, INC., KANSAS CITY, MO.

Ampul Sodium Benzoate Solution: 1.77 Gm. (equivalent to 1.5 Gm. benzoic acid) in 20 cc.

ALLERGENIC EXTRACTS (See New and Nonofficial Remedies, 1942, p. 1).

U. S. STANDARD PRODUCTS CO., WOODWORTH, WIS.

The following additional allergenic extracts, marketed in 5 cc. vials, representing 20,000 pollen units per cubic centimeter, have been accepted:

Alder (Tag), Alfalfa, Birch (Black), Birch (White), Burning Bush, Cedar (Mountain), Chrysanthemum, Clover (Red), Clover (Sweet), Dahlia, Daisy (Ox-Eye), Pecan, Pine (White), Plantain (Narrow), Poplar (Lombardy), Ragweed (Southern), Sage (Common), Sage (Prairie), Sheep Sorrel, Sudan Grass, Sunflower, Sycamore, Velvet Grass, Walnut (Black), Water Hemp (Western), Wheat (Field), Yellow Dock.

The following product is supplied in 5 cc. vials representing 30,000 pollen units per cubic centimeter and in packages of four 5 cc. vials representing, respectively, 100, 1,000, 10,000 and 10,000 pollen units per cubic centimeter:

Ragweed Combined (Giant and Common Ragweed in equal parts).

The following product is supplied in 5 cc. vials representing 30,000 pollen units per cubic centimeter:

Grasses Combined (Bermuda, June Grass, Orchard Grass, Red Top, Sweet Vernal Grass and Timothy in equal parts).

MERSALYL AND THEOPHYLLINE.—A mixture containing two parts by weight of mersalyl U. S. P. and one part by weight of theophylline U. S. P.

Actions and Uses.—(See New and Nonofficial Remedies, 1942, p. 326, under Salyrgan-Theophylline Solution.)

Dosage.—Two tablets may be given in one dose in the morning after breakfast and repeated in four to five days if required. As an adjunct to intravenous medication, one tablet may be given daily for one or two weeks but in such instances rest periods of one or two weeks should intervene between courses of treatment.

WINTHROP CHEMICAL COMPANY, INC., NEW YORK

Salyrgan-Theophylline Tablets: Each tablet contains 0.08 Gm. mersalyl and 0.04 Gm. theophylline.

SULFAGUANIDINE (See New and Nonofficial Remedies, 1942, p. 159).

The following dosage forms have been accepted:

LEDERLE LABORATORIES, INC., PEARL RIVER, N. Y.

Sulfaguanidine *(Powder):* bulk.

Tablets Sulfaguanidine: 0.5 Gm. (7.7 grains).

SULFAPYRIDINE (See New and Nonofficial Remedies, 1942, p. 146).

The following dosage form has been accepted:

PITMAN-MOORE COMPANY, INDIANAPOLIS

Tablets Sulfapyridine: 0.5 Gm. (7.7 grains).

ETHYL AMINOBENZOATE (See New and Nonofficial Remedies, 1942, p. 65).

The following dosage forms have been accepted:

GEORGE A. BREON & COMPANY, INC., KANSAS CITY, MO.

Benzocaine in Oil: Bottles of ½ fluidounce and 1 pint. Contains benzocaine 2.5 per cent W/V and chlorobutanol 0.5 per cent W/V in cottonseed oil.

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SATURDAY, JUNE 12, 1943

REORGANIZATION OF UNITED STATES PUBLIC HEALTH SERVICE

The labyrinth of federal public health legislation extending over a period of one hundred and forty-three years has not produced a uniform pattern of requirements with respect to the administrative operations of the Public Health Service. Now a more efficient organizational structure of the Service is proposed by legislation pending in Congress, introduced at the request of the Administrator of the Federal Security Agency. The structure, according to Administrator McNutt, is extremely cumbersome at present, resulting inevitably in an overlapping of functions and in a duplication of effort. Important war responsibilities too have been imposed on the Public Health Service which emphasize the need for internal reorganization.

Senate and House committees have conducted hearings on companion bills, S. 400 and H. R. 649, introduced respectively by Senator Thomas and Representative Bulwinkle to give effect to the recommendations of the Administrator of the Federal Security Agency. The Senate bill has already passed the Senate in an amended form. As amended, it provides that the Public Health Service will consist of the Office of Surgeon General, the National Institute of Health and two bureaus to be known as the Bureau of Medical Services, to operate all hospitals and clinics under the jurisdiction of the Service, and the Bureau of State Services, to administer grants-in-aid and to supervise services to the several states. The Surgeon General will be authorized to assign functions and to establish within the National Institute of Health the two bureaus and in the Office of the Surgeon General such divisions, sections and other units as may be required. In this way, according to the report of the Senate Committee on Education and Labor, it will be possible to place like functions within controlling units, eliminating greatly the need for coordination and leaving to subordinate officers many details which now inevitably find their way to the Surgeon General.

The Director of the National Institute of Health, the chiefs of each of the bureaus, and the officer assigned as Chief Medical Officer of the United States Coast Guard will be commissioned medical officers detailed by the Surgeon General from the regular corps and while so detailed will be Assistant Surgeon Generals and will have the same grade and will receive the same pay and allowances as the Assistant to the Surgeon General. In the office of the Surgeon General there will be established a Dental Division and a Sanitary Engineering Division. The chiefs of such divisions will be a commissioned dental officer and a commissioned sanitary engineer officer respectively, each of whom will have the grade, pay and allowances of an Assistant Surgeon General.

In addition to the provisions of the legislation relating to the reorganization of the Service, provisions are included to provide for commissioned officers of the Service a parity of promotion, pay and benefits with commissioned officers of the Medical Corps of the Army. In time of war or national emergency, any commissioned officer of the regular corps of the Public Health Service may be appointed to a higher temporary grade with the pay and allowances thereof without vacating his permanent appointment. Reserve officers of the Service may be distributed in the several grades without regard to the proportion which at any time obtains or has obtained among the commissioned medical officers of the Service.

The record of each commissioned officer of the regular corps initially appointed above the grade of Assistant Surgeon, after the first three years of service in such grade, will be reviewed and any such officer who is found to be unqualified for further service will be separated from the Service and paid six months' pay and allowances. Original appointments in the commissioned corps, both regular and reserve, may be made to a junior grade which shall correspond to that held by a second lieutenant in the Medical Department of the Army; persons so appointed will be entitled to the same pay and allowances as a second lieutenant in the Medical Department of the Army. After not less than one nor more than two years of service, each such appointee in the regular corps may be examined and either promoted to the grade of Assistant Surgeon or separated from the Service.

Commissioned officers of the Public Health Service, regular and reserve, will be entitled to the same pay, allowances and all other rights, benefits and privileges authorized or provided for officers of corresponding grade of the Medical Corps of the Army. All commissioned officers of the Service detailed for duty with the Army or Navy will be held and considered to be in the active military service of the United States. While so detailed they will be subject to all the laws and regulations operative for the government of the respective services to which they are detailed. The additional benefits to be granted by this legislation will be available to commissioned officers of the Service,

regular and reserve, and to their surviving dependents, if any, who were serving outside the continental limits of the United States on Dec. 7, 1941 or who since that date have been made prisoners of war or who have been disabled or who have lost their lives while on active duty.

This legislation contains nothing further to extend the activities or further to enlarge the powers of the Public Health Service. In the language of the Senate Committee on Education and Labor, it merely provides "for an orderly realinement of the many activities of the Service from an administrative standpoint, provides for the much needed temporary promotion for certain officers in the Service and provides reasonable benefits for the officers of the Service in connection with their duties to the armed forces."

One Senate amendment to the Senate bill provides that "for the duration of the present war and for six months thereafter graduates of reputable osteopathic colleges shall be eligible for appointment as reserve officers in the Public Health Service." In all other respects, the legislation seems to propose an improvement in the quality of services rendered by the personnel of the Service. The osteopathic amendment, if permitted to remain in the bill, will inevitably have the opposite effect, by its recognition of an inferior type of medical education. Certainly it will not increase the good repute of the Service. The Medical Departments of the Army and Navy have consistently insisted that the high quality of their commissioned personnel be maintained. The Federal Security Agency and the United States Public Health Service should do everything possible to prevent the enactment of legislation designed to undermine standards. Let the people continue to have faith in the dependability of the United States Public Health Service.

ASPHYXIATED TUBERCULOSIS VACCINE

The tubercle bacillus survives a temperature as low as that of liquid helium as well as freezing up to two hundred times with liquid nitrogen.[1] In this remarkable resistance to cold the bacillus differs from mammalian cells and tissues, the activities of which are retarded in temperatures near the freezing point but which in general do not survive actual freezing. The prolonged survival of the bacillus when frozen may be explained by dormancy on the part of its enzymes under low temperature. The bacillus can survive desiccation also.[2] Hermetically sealed in glass capsules containing less than one billionth of an atmosphere, the bacillus survived more than one year at body temperature. In this experiment the bacillus was very dry, which may have contributed to its dormancy. Incubated in a partial vacuum, saturated with water vapor but deprived of oxygen, the bacillus lost all power of growth, even when introduced into the most highly susceptible animal body. The bacillus, so to speak, was asphyxiated but without loss of antigenic action, as revealed by immunizing animals with avian and human strains of asphyxiated tubercle bacilli.

Preparation of a nonviable asphyxiated tuberculosis vaccine with immunizing power allegedly superior for laboratory animals to other products is reported by Potter[3] of the Laboratory of Preventive Medicine, University of Chicago. Numerous investigators[4] have attempted to obtain a relatively undenatured tuberculosis vaccine by storing dry tubercle bacilli at refrigerator temperatures in the maximum vacuum obtainable with a high grade mercury pump. Such stored bacilli remain alive and fully infective for at least two years, presumably because of a nearly complete metabolic standstill caused by absence of moisture and warmth. In order to kill the bacilli by lack of oxygen, Potter therefore repeated the tests under conditions that maintained normal moisture and optimal temperature.

Highly virulent human tubercle bacilli were placed in empty pyrex test tubes together with 0.5 cc. of freshly boiled tap water. The oxygen was then removed in three stages, first by prolonged evacuation with a Hyvac pump, by which the estimated oxygen pressure was reduced to a two-hundredth part of that of the original air. Second, the evacuated tubes were filled and reexhausted seven times with electrolytic hydrogen, after which lavage only a hundred-thousandth part of the original oxygen remained in the tubes. Finally the residual traces of oxygen and hydrogen were absorbed on powdered palladium sponge. The tubes were then stored in the dark at 38 C.

All organisms from tubes thus prepared and opened between the twentieth and forty-second day of storage failed to grow when plated on a variety of favorable culture mediums. Five to 10 guinea pigs were injected subcutaneously with each asphyxiated sample. Guinea pigs injected with the twenty to twenty-five day asphyxiated cultures occasionally developed tuberculosis. All guinea pigs injected with cultures asphyxiated for at least thirty days showed no evidence of tuberculosis when killed eight weeks later. Similar results were obtained with asphyxiated highly virulent bovine and avian strains, 6 week old chicks being used as the test animal.

Since tubercle bacilli killed by asphyxiation are presumably less denatured than bacilli killed by heat or chemical antiseptics, it would seem reasonable to hope that asphyxiated vaccines would have immunizing powers superior to those of any other nonviable tuberculosis vaccine thus far tested. A series of rabbits and pigeons were therefore given five subcutaneous injections at five day intervals of asphyxiated avian

1. Kyes, Preston, and Potter, T. S.: The Resistance of Avian Tubercle Bacilli to Low Temperatures, J. Infect. Dis. **64**: 123 (March-April) 1939.
2. Potter, T. S.: Survival of Oxygen and Water Deprival by Tubercle Bacilli, J. Infect. Dis. **60**: 88 (Jan.-Feb.) 1937.
3. Potter, T. S.: J. Infect. Dis. **71**: 220, 232 (Nov.-Dec.) 1942.
4. Potter, T. S.: J. Infect. Dis. **57**: 149 (Sept.-Oct.) 1935.

tubercle bacilli. The pigeons continued well for seven and one-half months, at which time they were killed, necropsies revealing almost complete disintegration and absorption of the injected vaccine without active tuberculosis. The rabbits were killed from one year to seventeen months after vaccination, at which time they were also without signs of tuberculosis.

Beginning at four and one-half months after this vaccination, groups of rabbits with an equal number of nonvaccinated controls were tested for acquired immunity by intravenous injection of massive test doses of living avian tubercle bacilli. The vaccinated rabbits developed but one-sixth as many lesions as the controls and by the end of fifteen months had shown but one-fourth their tuberculosis mortality. This degree of postvaccinal immunity is apparently superior to that reported by Opie and Freund [5] following vaccination with heat killed tubercle bacilli. Potter's tests show that an appreciable degree of the postvaccinal immunity persists for at least a year, with full duration not yet determined. Attempts to improve the nonviable tuberculosis vaccine by adopting methods that would facilitate more rapid interstitial disintegration and absorption of the injected asphyxiated bacilli are now in progress.

Current Comment

DELAYED RUPTURE OF THE SPLEEN

Delayed splenic rupture and the syndrome which accompanies it, rare in peacetime, now takes on new importance because of its potentially great increase in incidence resulting from warfare. In a recent review of this subject Zabinski and Harkins [1] analyzed 66 reported cases of traumatic subcutaneous rupture of the spleen with delayed hemorrhage, including 4 of their own. Delayed splenic rupture is most common in men in the third decade in life. Falls and traffic accidents are the most common etiologic agents. About 50 per cent of the secondary ruptures occur after intervals of less than seven days, while in an additional 25 per cent the latent period ends during the second week. Fractured ribs on the left side occur in about 10 per cent of the cases. Kehr's sign (pain in the left shoulder due to irritation of the phrenic nerve) is present in about 28 per cent or more of the cases. Other diagnostic signs are similar to those occurring in any type of splenic rupture such as sudden collapse or shock, rapid or increasing pulse rate, progressive anemia, white cell count from 12,000 to 20,000, absence of fever over 99 F., pain, tenderness, dulness and rigidity in the upper left quadrant and in some instances signs of free fluid in the peritoneal cavity. Without operation, mortality ranges from 77 to 100 per cent. When splenic laceration is suspected, Zabinski and Harkins say, the patient should be kept in bed under close observation. When the diagnosis is reasonably definite, or at the first sign of secondary hemorrhage, splenectomy should be performed. Adequate treatment of shock with plasma or whole blood forms a necessary adjunct to the operative procedure. This syndrome is especially insidious and treacherous because of the almost symptom free latent period, but this delay also offers an opportunity for diagnosis and proper treatment.

5. Opie, E. L., and Freund, Jules: J. Exper. Med. **66**: 761 (Dec.) 1937.

1. Zabinski, E. J., and Harkins, H. N.: Delayed Splenic Rupture: A Clinical Syndrome Following Trauma, Arch. Surg. **46**: 186 (Feb.) 1943.

HYPERVITAMINOTIC GALLSTONES

According to data recently reported by Ruth Okey [1] of the Department of Home Economics, University of California, an excessive intake of vitamin B may lead under certain nutritional conditions to the formation of gallstones in experimental animals. The California biochemist studied the vitamin tolerance of guinea pigs maintained on a basic diet consisting of casein, crisco, wheat bran, dried brewers' yeast, Hubbels salt, agar and cornstarch, plus 1 per cent cholesterol. This diet was supplemented by a daily pipet feeding of a vitamin mixture consisting of cerophyll, carotene, irradiated ergosterol, orange juice, wheat germ oil and other factors previously found necessary for maximum growth. Control (cholesterol free) animals of this series had a growth rate slightly less than animals maintained on their previous stock diet. Okey attempted to improve their nutrition by a supplementary daily administration of 25 micrograms of riboflavin, 125 micrograms of calcium pantothenate or both. These supplementary vitamins increased the apparent well being of both control and cholesterol fed animals, but to her surprise the guinea pigs which were fed cholesterol and given supplementary vitamin B showed an abrupt and usually fatal anemia without the usual preliminary loss of weight or other signs of illness. Eighty per cent of the necropsies in these fatal cases revealed gallstones (often impacted) accompanied by irritating lesions of the gallbladder and biliary passages. Fifteen per cent of the fatal cases showed "murky" bile but without macroscopic gallstones. Satisfactory necropsies were not possible on two other fatalities, since the animals died at night and the gallbladder had burst and their contents had been lost. All control guinea pigs of the series of animals not given the vitamin B supplment but fed cholesterol were free from gallstones. Reviewing previous necropsy records Okey found that all previously recorded cases of gallstones were associated with diets particularly rich in cholesterol (unextracted casein and/or egg yolk) and diets also probably containing an excess of riboflavin. The conclusion seems inevitable that an overabundance of vitamin B will lead to gallstone formation in animals otherwise tolerant to cholesterol rich diets. Taken in connection with the recent demonstration of the deleterious effects of excessive doses of thiamine on natural resistance to experimental poliomyelitis,[2] Okey's observations are of basic clinical interest. Analyses of her vitaminogenic gallstones showed that they were rich in calcium phosphate although containing some cholesterol.

1. Okey, Ruth: Proc. Soc. Exper. Biol. & Med. **51**: 349 (Dec.) 1942.
2. B_1 Vitamin Hypoimmunity, editorial, J. A. M. A. **121**: 1284 (April 17) 1943.

THE SURGEON GENERAL OF THE ARMY

On June 1 Major Gen. Norman T. Kirk became Surgeon General of the Army, succeeding Major Gen. James C. Magee, who retired with an excellent record for leadership and for the maintenance of high standards in the military medical service. The medical department of the Army has grown in size and importance beyond anything ever previously anticipated. There are now thirty-four general hospitals and about five hundred station hospitals in the continental United States and a great number of other army hospitals scattered throughout the world. Brigadier General Kirk, who as surgeon general will hold the rank of major general, relinquished at the time of his appointment the position of commanding officer of the new Percy Jones General Hospital at Battle Creek, Mich. In 1919 General Kirk was in the surgical service at Walter Reed General Hospital and later had duty at Johns Hopkins University Hospital, the Massachusetts General Hospital and the Station Hospital at Fort Sam Houston, Texas, where he became chief of the surgical service. He served subsequently as chief of the surgical service at Sternberg General Hospital in Manila, the Station Hospital at Fort Mills in the Philippine Islands, again at Sternberg and later at the Walter Reed General Hospital in Washington. General Kirk addressed the House of Delegates of the American Medical Association at its opening session in Chicago on June 7. The medical profession will, of course, tender to him, as it has to his predecessors, the complete support that is so vital in maintaining for our troops the high quality of medical care that has been exemplified in the past.

MAJOR GENERAL NORMAN T. KIRK

ARCHITECTS LOOK AHEAD IN HOSPITAL PLANNING

The *Architectural Forum* for May contains two articles written by architects discussing the designing of hospitals and health facilities of the future. The architectural problems faced include the use of new materials, new types of design for better utilization of space and sunlight and low cost. Both of these articles are of interest as being indicative of forethought on the part of the architects in the planning of hospitals and health centers when their building again becomes possible.

ISOLATION OF PROTEIN HORMONES OF THE PITUITARY BODY

The pituitary body dominates the glands of internal secretion through the hormones produced by its anterior or glandular lobe. Growth, reproduction and metabolism are regulated by these hormones, which are believed to be proteins. The isolation and characteristics of these proteins are receiving close cooperative attention from biologists and chemists. The progress of current investigations in this field was reviewed at a recent conference in New York.[1] Shedlovsky, discussing the criteria of purity of proteins, points out that in the case of biologically active substances the evidence on which to base judgment as to purity must come from three distinct sources, namely accurate biologic assays, chemical analyses and studies in electrophoresis, solubility and ultracentrifugation. Significant progress is recorded in the work on the follicle stimulating (Chow), the luteinizing (Fevold) and the growth and metabolic (Long) hormones of the anterior pituitary, but conclusive results have not yet been reached. According to Abraham White the lactogenic hormone, best known as prolactin, is the first anterior pituitary hormone to be isolated in pure form. The evidence at hand indicates that prolactin is a protein. Recently this hormone has been found to induce corpus luteum activity in hypophysectomized rats. Irving and du Vigneaud summarized the status of the posterior pituitary hormone problem by saying that the pressor and oxytocic hormones isolated from the posterior lobe have not yet been obtained in pure form, but highly potent preparations represent "fairly pure preparations of separate molecules which may be similar chemically." A protein with pressor, oxytocic and antidiuretic activity has been isolated from the posterior lobe in what seems to be pure form, but further work is necessary before this protein can be accepted as a posterior lobe hormone with multiple activities. As emphasized by van Dyke in his introduction to the conference, biologists and chemists must continue their alliance in research toward the isolation of the hormones of the pituitary in pure forms. This is the only way by which advances can be made in the solution of some of the problems of this extraordinarily complex gland.

1. van Dyke, H. B.; Chow, Bacon, F.; du Vigneaud, Vincent; Fevold, H. L.; Irving, George W., Jr.; Long, C. N. H.; Shedlovsky, Theodore, and White, Abraham: Protein Hormones of the Pituitary Body, Ann. New York Acad. Sc. **43**: 253 (Feb. 26) 1943.

MEDICINE AND THE WAR

In this section of The Journal each week will appear official notices by the Committee on War Participation of the American Medical Association, announcements by the Surgeon Generals of the Army, Navy and Public Health Service, and other governmental agencies dealing with medicine and the war and such other information and announcements as will be useful to the medical profession.

ARMY

SOLDIERS GET HIGH QUALITY OF MEDICAL TREATMENT

The Office of War Information announced on May 19 that more than 97 per cent of the naval and marine wounded at Pearl Harbor to March 31, 1943 have recovered and that an analysis of available data on the army wounded shows that recoveries are comparable to naval and marine percentages. Never before in history, the Office of War Information states, has the fighting man had available such medical care and equipment as the United States now furnishes its defenders. The care of the wounded under the American system of military medicine begins with the soldier himself, each one having fastened to his belt a first aid packet, a package of sulfadiazine tablets and a sulfonamide powder. If the soldier is conscious after being wounded he begins to take the sulfadiazine tablets at once, dusts the sulfonamide powder in his wound and uses the first aid packet. In all probability, however, a hospital corpsman has come to his aid before he has a chance to do this. The corpsman administers quickly to the soldier, ties a tag to the soldier's belt showing what treatment has been given, fixes a bit of gauze to a bayonet or stick to mark the soldier's location, and then goes forward with the attack. Litter bearers then carry the wounded soldier to a battalion aid station farther back, where he is attended by physicians and cared for until he can be removed in an ambulance or other conveyance still farther back to the collecting stations. Here the various cases are classified and the more seriously wounded taken to field or evacuation hospitals usually from 5 to 7 miles from the fighting front. The field hospitals are mobile but equipped with the most modern supplies and staffed by expert surgeons with specialists available for all kinds of injuries. Farther back are the large general or base hospitals, usually several hundred miles from the battle area and the equal in equipment to the most elaborate city hospitals. Here the wounded may remain until fully recovered and returned to duty or they may be sent to hospitals in the United States. Some wounded men in distant battlefields have reached the homeland faster than the report of their having been wounded. A severely wounded soldier was brought home for treatment from Egypt by ambulance plane in seventy-two hours; others have been flown to the homeland from the Far East, India and Africa. Should medical supplies be delayed in reaching the battle area, American doctors have been trained to perform their duties with such equipment as is at hand. Some ships carrying medical supplies for the North African campaign were torpedoed and yet a system of caring for the wounded was established right from the beaches of the Mediterranean; that this method also was effective was shown by the hundreds of recoveries from wounds.

ANNUAL MEETING OF MILITARY SURGEONS

The Association of Military Surgeons of the United States will hold its fifty-first annual convention in Philadelphia at the Bellevue-Stratford Hotel on October 21-23. Doctors will assemble from all fronts where United States forces are fighting and from the great base hospitals where rehabilitation of the wounded is in progress, bringing with them information on the latest technics of wartime medicine and surgery. Lectures, demonstrations, moving pictures and teaching panels are planned to present data to the convention.

The honorary chairman of this convention is Rear Admiral Ross T. McIntire, Surgeon General of the Navy. The general chairman is Capt. Joseph A. Biello, Medical Corps, U. S. Navy, The vice chairmen are Brig. Gen. George F. Lull, M. C., U. S. Army, of Washington, D. C., and Comdr. E. L. Bortz, MC, U.S.N.R., of Philadelphia. National officers of the association are as follows: president, Capt. William L. Mann, MC, U.S.N., National Naval Medical Center, Bethesda, Md.; first vice president, Col. Lucius A. Salisbury, Medical Corps, New York National Guard; second vice president, Asst. Surg. Gen. Warren F. Draper, U. S. Public Health Service; third vice president, Col. Edgar Erskine Hume, Medical Corps, U. S. Army; fourth vice president, Col. Irvin Abell, Medical Reserve, U. S. Army; fifth vice president, Dr. Martin L. Cooley, Veteran's Administration; secretary, Col. James M. Phalen, U. S. Army (retired), and executive secretary, Stuart E. Womeldorph.

REDUCE NUMBER OF DOCTORS ALLOTTED TO CERTAIN UNITS

The War Department has ordered that as a general policy and in order to place the medical officers available where they are most needed, regimental and separate units, such as battalions, which now are authorized to have two medical officers by the Tables of Organization will be provided only with one medical officer while in continental United States. Before such units go overseas, the number of medical officers will be increased to Tables of Organization strength.

All Tables of Organization which include medical and dental officers will be revised to show, in the case of attached medical and dental officers, that they will be furnished only as required and available in continental United States. All medical and dental officers designated in Tables of Organization as captains or as first lieutenants will be shown as authorized in either rank, no specification being made.

WAR DEPARTMENT ORDERS EXERCISE FOR HEALTH

The War Department has ordered, according to the *Army and Navy Journal*, that, whenever possible, the duties of officers whose work is confined primarily to offices will be so arranged that each such officer will be allowed at least one-half day a week other than holidays and Sundays for physical exercise in the interest of good health and mental fitness. Exercise in the open air or in a well ventilated room will be taken regularly by all officers not actually participating in active outdoor instruction of troops.

PERMANENT PROMOTIONS

The President of the United States has nominated, among others in a list of army officers for permanent promotion in the regular army, the following in the medical corps: Albert R. Driesbach from captain to major; James E. Vickers, George Arack, Robert G. Rate and Ivan C. Dimmick Jr., from first lieutenants to captains, and from lieutenant colonel to colonel Andrew W. Smith, No. 80 on the lieutenant colonel's relative list, M. C., to and including Seymour C. Schwartz, No. 103.

THE MOORE GENERAL HOSPITAL

The Moore General Hospital is situated in the picturesque Swannanoa Valley, surrounded by mountains, 13 miles west of Asheville, N. C. The elevation is 2,250 feet. A short railroad spur connecting the main line of the Southern Railroad with the hospital proper expedites the movement of patients, in that hospital trains may be drawn into a specially constructed station on the hospital reservation. Here a covered platform has been built level with the railway car floor, where patients can be easily removed and placed in the station. Ambulances receive patients from a completely closed in and heated platform and transmit them to the receiving office, where they are unloaded on a similarly constructed platform. This cantonment type hospital at present has 1,520 beds available and it has been authorized to administer fever therapy.

The medical officers at present on duty are:

Col. Frank W. Wilson, Commanding
Lieut. Col. Roger H. Allbee, Hospital Inspector and Plans and Training Officer
1st Lieut. Jacob J. Belfer, Surgery
1st Lieut. Stephen M. Clement, Neuropsychiatry
Major Nathan B. Cohen, Chief, Eye, Ear, Nose and Throat
1st Lieut. Robert M. Dacus Jr., Orthopedics
Major Louis S. Faust, Assistant Chief of Medical Service, Chief of Cardiovascular Section
Capt. Joseph H. Garthe, Chief of Communicable Diseases
Major Thomas A. Gibson, Executive Officer and Public Relations Officer
1st Lieut. Silvio M. Guglielmelli, Medical Service
Major Willard F. Hollenbeck, Chief of Medical Service and Chief of Gastrointestinal Section
1st Lieut. Robert K. Harvey, Orthopedics
Major John S. Hooker Sr., Chief of General Medicine Section
Major William A. Hunter, Chief of Neuropsychiatric Section
Capt. Charles W. Knerler, Chief of Dermatology and Syphilitic Section.
Capt. Eugene H. King, Medical Service
Capt. Sol E. Kantor, Anesthesist
Capt. Edwin F. Lathbury, Eye, Ear, Nose and Throat
1st Lieut. Oscar Legault, Neuropsychiatry
1st Lieut. Alfred D. Levick, Surgery
1st Lieut. James T. Marr, Roentgenology
1st Lieut. Henry B. Marshall, Urology
Capt. John S. McKee Jr., Receiving and Disposition Officer
Capt. Francis J. McMahon, Surgery
Major Frank G. Murphy, Chief of Orthopedic Section
Capt. Dewey T. Nabors, Chief of Genitourinary Service
1st Lieut. James J. O'Leary Jr., Assistant Chief of Surgical Service
Capt. Ferdinand Piazza, Assistant Receiving and Disposition Officer
Capt. Richard C. Ritter, Orthopedics
Major Earl W. Rothermal, Chief of Physical Therapy Section
Major Malcolm H. Rourk, Registrar, Trial Judge Advocate, Commanding Officer Detachment of Patients, Intelligence Officer
Major George L. Sackett, Chief of Roentgenologic Service
Capt. Donato A. Santarsiero, Ophthalmologist
1st Lieut. Robert V. Schatken, Surgery
1st Lieut. Samuel Sober, Medical Service
Major Lester C. Thomas, Chief of Surgical Service
Capt. Calvert R. Toy, Medical Service
1st Lieut. Charles A. Tucker, Eye, Ear, Nose and Throat
1st Lieut. David Turnoff, Medical Service
Capt. Franklin H. Wakefield, Surgery
Capt. Thomas B. Wilson, Chief of Laboratory Service

PRECISION IN PLACEMENT OF MEDICAL SPECIALISTS

The War Department announced on May 27 that the Office of the Air Surgeon has placed in accordance with their professional specialties 98.8 per cent of all Army Air Forces medical officers who are qualified as specialists by the specialty boards or colleges of the medical profession; of the remaining 1.2 per cent, the large majority are officers assigned to administrative duty because of special ability in that field, or functioning as executive officers and commanding officers of hospital installations.

This record of accurate utilization of the specialized qualifications of Army Air Forces medical officers has been achieved through constant watchfulness by the Office of the Air Surgeon. A constant check on the assignments of doctors on duty with the Army Air Forces by the Air Surgeon assures continuation of their efficient use.

ARMY HOSPITAL NEEDS SPECIAL TYPES OF PERSONNEL

The U. S. Army Finney General Hospital at Thomasville, Ga., is urgently in need of personnel with specialized types of training to complete its organization. Being unable to secure such personnel locally, the personnel director of the Finney General Hospital appeals to those trained and qualified for certain positions to make application to him as soon as possible. He also urgently requests any person who has acquaintances qualified for these positions to write in at once giving their names and addresses. The commanding officer of the Finney General Hospital is Col. S. M. Browne, and the personnel director is Capt. Cletus A. Sharkey. Application should be made on Civil Service form number 57, obtainable at any postoffice or civil service office. The following positions are available: medical technicians in bacteriology, roentgenology, surgery, chemistry and general laboratory work; assistant medical technicians in general laboratory work, bacteriology, roentgenology, surgery (tissue work) and chemistry; orthopedic mechanic, junior orthopedic mechanic, occupational therapy aides, dental mechanics, assistant dental mechanics, dental hygienists and dental assistants. The base pay plus bonus per annum for these various positions varies from $1,750 a year to $2,433.12 a year.

CLASS OF AVIATION PHYSIOLOGISTS

Another class of aviation physiologists graduated at the School of Aviation Medicine in Texas on April 17. The course of instruction covers the effects of lowered barometric pressure, anoxia and the effect of flight on man, the operation of low pressure chambers, the theory and practical use of oxygen equipment and the conduct of high altitude indoctrination and classification. Among the graduates were the following medical officers, all first lieutenants: Stephen J. Alexander Jr., Crawfordsville, Ind.; Russell G. Barnes Jr., Hastings, Minn.; Gordon A. Brown, St. Paul; William C. Browne, Corydon, Pa.; Daniel H. Cahoon, Boston; Albert W. Dautrich, Torrington, Conn.; Ward S. Fowler, Elkins Park, Pa.; William L. Hartmann, New York; Erle M. Heath, Pittsburgh; Henry F. Keiber, Staten Island, N. Y.; Donald R. McRae Jr., Augusta, Ga.; Archibald G. Martin, Suffolk, Va.; Milton Mazer, Philadelphia, and Norman E. Mendenhall, Johnstown, Pa.

AMERICAN CASUALTIES IN NORTH AFRICA

The Secretary of War announced that from Nov. 8, 1942 to May 15, 1943 the American casualties in the North African military operations, including the initial landings, were 2,184 killed, 9,437 wounded and 6,937 missing, including prisoners of war.

ARMY PERSONALS

Lieut. A. L. Batalion, Medical Corps, Army of the United States, of Ameagle, W. Va., has been reported missing in action since February 17. Lieutenant Batalion was commissioned in the Army in October 1942.

Major John M. Cotton arrived in San Francisco a few days ago after spending sixteen months as executive officer at a base hospital in the South Pacific Area. Before entering the service in 1941, Major Cotton practiced psychiatry in New York. He praised the work done by those charged with bringing the sick and wounded from the front through the jungles to the base hospitals for treatment; in the more overgrown sections they had to resort to extreme ingenuity in devising any means possible to get the sick and wounded over the large gorges and through the thick mountain jungle.

Brig. Gen. James S. Simmons, A. U. S., director of the Preventive Medicine Division, Office of the Surgeon General, United States Army, delivered the John Wyckoff lectures at New York University on April 15 and 16. The title of the first lecture was "The Preventive Medicine Program of the United States Army" and of the second lecture "The Present

State of the Army's Health." Duke University, Durham, N. C., conferred the honorary degree of Doctor of Science on General Simmons at commencement exercises on May 22.

Col. Charles F. Shook, M. C., of the supply division of the Surgeon General's Office, has been detailed to duty with the headquarters of the American Red Cross in Washington. According to the *Military Surgeon,* Colonel Shook will represent the medical services of both the Army and the Navy in carrying on with the Red Cross in its campaign for blood plasma. This work will require much travel to blood donor centers throughout the country.

Dr. Currier McEwen, dean of the New York University College of Medicine, has been granted a leave of absence from that position and has gone in the army, where he is serving as executive officer of the Bellevue Hospital affiliated unit, the First General Hospital, which is now in training at Fort George G. Meade, Maryland.

The promotion of Capt. Miles G. Bell, M. A. C., to major makes him the first Medical Administrative Corps officer candidate school graduate to attain that rank; while other M. A. C. officers hold higher rank, theirs was received by direct commissions. Major Bell is a graduate of the first O. C. S. class at Carlisle Barracks, Pa., receiving his commission in September 1941. On graduation he remained as department of administration instructor. Coming to Camp Barkeley, Texas, in May 1942 with the original group of officers to activate the O. C. S., he was made director of the department of administration. Major Bell is the son of Lieut. Col. Charles A. Bell, M. C., retired, now on duty at the Army and Navy General Hospital, Hot Springs, Ark.

Lieut. Col. Charles R. Rayburn, professor of psychiatry at the University of Oklahoma Medical School, is now serving as executive officer of the base hospital at Hunter Field, Savannah, Ga.

Dr. Joseph J. Eller, New York, gave a lantern slide demonstration and lecture on "The Diagnosis and Treatment of Benign and Malignant Tumors of the Skin" before the Army medical and dental officers at Morrison Field, West Palm Beach, Fla., May 7.

Major Saverio C. Franco, M. C., stationed at the 79th General Hospital, Camp White, Oregon, was promoted to the rank of lieutenant colonel on April 13.

Major L. Rush Lambert of Fairmont, W. Va., state medical selective service officer, Charleston, W. Va., was promoted to lieutenant colonel on March 6.

MANUAL OF INDUSTRIAL NUTRITION

The Nutrition in Industry Division of the War Food Administration of the U. S. Department of Agriculture, Washington, D. C., has published a "Manual of Industrial Nutrition," which is available on request from the Nutrition in Industry Division or from any one of the seven regional offices of the Food Distribution Administration. Dr. Robert S. Goodhart, chief of the division, said that there is evidence that many of the usual practices associated with the preparation and service of food in plant cafeterias and restaurants result in serious losses in food values. This booklet outlines the effect these food losses may have on absenteeism and production and on the ways in which food may be selected, prepared and served in order to reduce unnecessary losses in food values. It is said that the losses of thiamine ran as high as 92 per cent in the preparation of a meal of meat, potatoes and beans in one plant cafeteria.

OFFICERS ON DUTY AT CAMP CARSON

The new station hospital at Camp Carson, Colorado, is located on the plains a few miles out of Colorado Springs. The following list shows the chiefs of sections and other officers now on duty at the station hospital:

Col. John I. Marker, Commanding Officer.
Capt. Edward D. Greenwood, Executive Officer and Chief, Neuropsychiatry Section.
Major James C. Harberson, Chief, Surgical Service.
Lieut. Col. Philip S. Hench, Chief, Medical Service.
Major William M. B. Brown, Chief, Eye, Ear, Nose and Throat Clinic.
Major Harry W. Woodward, Chief, Orthopedic Section.
Capt. Lester W. Baird, Chief, Roentgenologic Section.
Capt. Richard H. Mellen, Chief, Physical Therapy.
Capt. Aaron D. Vogelsang, Chief, Genitourinary Section.
1st Lieut. George A. Bradasch, Chief, Anesthesia Section.
Major Robert O. Garvin, Chief, Gastroenterology Section.
Capt. Henry A. Brunsting, Chief, Dermatology Section.
Capt. Paul E. Lavelle, Chief, Laboratory Service.
Capt. Donald W. Ingham, Chief, Cardiovascular Section.
Capt. Nathaniel J. Cohen, Chief, Communicable Disease Section.
Capt. John C. Nunemaker, Librarian.
Major James L. Blanton, 1st Lieut. Edgar S. Brintnall, Capt. Winfield L. Butsch, Capt. Donald C. Campbell, Capt. Howard C. Coggeshall, Capt. Dawson A. Dowell, Major Thomas J. Dry, Capt. Earl M. Edison, Major Clifford O. Erickson, Capt. R. Gibson, Capt. Wendell C. Kelly, Major Harry W. LeFevre, 1st Lieut. Martin L. List, Capt. Arthur S. Mann, Capt. Fayette D. Severance, Capt. Gerald H. Smith, Capt. Malcolm C. Todd, 1st Lieut. George L. Walker, Capt. David R. Wall.

THE DIVISION OF MEDICAL INTELLIGENCE

Dr. Gaylord W. Anderson, head of the division of preventive medicine and public health of the University of Minnesota School of Medicine, has been granted a leave of absence from that position in order that he may serve as head of the division of medical intelligence in the Office of the Surgeon General of the Army in Washington, D. C. The division of medical intelligence compiles health, climatic and sanitation evidence with respect to every area to which United States troops may be sent. Such matters as the types of insects, snakes and diseases peculiar to the area, degrees of heat and humidity, poisonous plants, necessary dietary precautions and probable purity of the water supply are included in comprehensive surveys.

NAVY

LIEUTENANT ROBERTS AWARDED SILVER STAR

Lieutenant (jg) Charles Purcell Roberts, U.S.N.R., of Atlanta, Georgia, has been awarded the Silver Star for services "above and beyond" the line of duty in action as a medical officer serving with a beach party of a U. S. Navy transport during the occupation of French Morocco. The commanding officer of the ship on which Lieutenant Roberts was serving made the following recommendation concerning the award:

As the medical officer of the Naval Beach party of the U. S. S. *Edward Rutledge,* which vessel transported the assault units of the 3rd Battalion of the 30th Infantry, U. S. A., and participated with them in the landing and attack operations upon Fedala, French Morocco, which resulted in the capture of the city and the quick capitulation of French Morocco; Charles Purcell Roberts, Lieutenant, junior grade, MC-V(S), U. S. Naval Reserve, showed exceptional gallantry and devotion to duty in his constant and tireless efforts, above and beyond the limits of ordinary endurance to succor the wounded and administer surgical aid which directly resulted in saving life and limbs.

During the period of Beach Party operations the medical unit suffered frequent strafing and bombing attacks from the air as well as from land installations and he was notable for his coolness, personal bravery, leadership and constant concern for both his patients and hospital corps personnel. During the bombing and strafing of the beach by enemy planes, Dr. Roberts calmly continued to administer intravenous plasma to a wounded soldier in the open field with utter disregard to his own safety. His stamina, leadership and organizational ability was demonstrated by his handling of the wounded at the evacuation station at Fedala, where, for a considerable time, he was the only medical officer present. He was held in great affection and admiration by those to whom he ministered.

Lieutenant Roberts graduated at Emory University School of Medicine, served at the Peter Bent Brigham Hospital in Boston for two years, at the Rhode Island Hospital for one year, was resident physician at the Pratt Diagnostic Hospital, Boston, for two years, then practiced medicine in Boston until he entered the Navy in June 1942. Lieutenant Roberts is the son of Dr. Charles W. Roberts of Atlanta, a member of the Board of Trustees of the American Medical Association.

MISCELLANEOUS

TRAINING OF MEDICAL PERSONNEL IN U.S.S.R. BEFORE AND DURING THE PRESENT WAR

PROF. V. LEBEDENKO

Representative of the Red Cross and Crescent of the Union of Socialist Soviet Republics to the United States

Moscow

Quite recently the Union of Socialist Soviet Republics celebrated its twenty-fifth year of existence. Looking back, one unwillingly begins to compare that which existed previously with the present as we know it. However, only such a comparison makes it possible for one to grasp the full significance of our accomplishments, concerning which we can speak with the greatest pride. Twenty-five years of building up a vast nation from its very roots, the colossal development of industry and agriculture, the introduction of new social concepts into the lives of the people, the inception of a new understanding of everyday commonplace existence—all these have required and still require of the millions of the population of our country a constant state of strain, tenseness and supreme strength and effort. Such conditions call for a nation of physically strong and healthy individuals.

For this reason one of the very first tasks which the Soviet government obligated itself to fulfil was to provide the nation with an adequate number of medical personnel and to reconstruct, or rather actually to create, a new widespread system of social medicine.

In the fall of 1913, shortly before the first world war, Russia could claim no more than 24,000 civil doctors of varied specialties. Of this total number 71 per cent were engaged in urban practice and only 29 per cent were distributed among the rural regions. Under these circumstances there were such instances as one general practitioner serving an area of 13,000 square versts with a population of as much as 40,000, and this a region without road or other developed means of transportation. Also at this time, of the total number of doctors only 1,800 were surgeons.

The training of physicians in the old czarist empire prior to 1917 was accomplished in seventeen medical schools, associated with universities, courses of higher learning for women and military medical academies. Each year each of these schools graduated from less than 100 to no more than 200 or 250 doctors.

The explosion of the first world war in 1914, with the drafting and enlistment for military service of a large proportion of the medical profession, seriously affected the entire structure of civil medicine. The very first days of the war evidenced the woful lack of medical personnel both at the front and on the home front. This shortage was particularly felt in the field of surgery. As the war progressed this situation rapidly became worse. Therefore, as one of its first sweeping reforms, the Soviet government was faced with the problem of providing for the population free medical care and service by highly trained personnel. This required an immediate expansion of educational and training facilities and the necessity of greatly increasing the ranks of the medical profession.

The year 1918 saw the opening of three new medical schools in three different cities. In 1922, sixteen additional medical schools were opened. This network of educational facilities grew year by year until at the beginning of the present war there were fifty-two medical schools in the country. In addition there then existed three military medical academies and nine stomatologic institutes. All these schools had an aggregate enrolment of 106,000. These institutions offer complete curriculums in therapy and general medicine, in sanitation and public health and in pediatrics. The overall purpose of all these institutes and courses was the preparation of doctors specializing in various fields.

The courses in therapy are designed to prepare the general practitioner. After being graduated from a five year course of this nature the physician is usually assigned to a rural district or to a hospital as a second (assistant) doctor.

The courses in hygiene, sanitation and public health are intended to give the doctor a general overall medical background and specifically to concentrate on questions of public health and hygiene. After being graduated from such courses, the doctor is in a position to practice independently immediately.

The third group of courses in pediatrics are organized so as not only to train students in the relatively narrow sphere of pediatrics but to prepare them as well to be directors of child care and welfare.

In addition to the fifty-two medical schools referred to, twelve institutes were organized which offered to practicing physicians the possibility for study and further specialization. In addition to all this, many medical scientific research institutes were established. These have played a great role in raising the qualifications of a great number of physicians.

Glancing at these naked figures, one can scarcely visualize the tremendous organizational groundwork which was required in the establishment and operation of each of these schools. The problem was not only one of erecting buildings, supplying required apparatus and instruments, necessary textbooks and instruction materials as well as dormitories and other facilities for the students, but it required also the basic preparation of qualified teachers to staff these schools. Obviously all the preliminary organizational tasks were accomplished satisfactorily, since the present situation as regards preparation for a medical career remains the same as it was prior to 1941. Namely, there has been no curtailment of enrolment nor has the number of years required for completing a diploma course been reduced, and the full period of five years of study is still in effect. It is true that in the first year of the war the entire curriculum was cut down to four years; however, it was quickly seen that such a reduction was unnecessary and the five year course was reinstated. One of the best indications of the high quality of the medical personnel which these many institutes have trained is the fact that as high as 70 per cent of present war casualties have been returned to the front completely restored to health.

It is interesting here to say something about the way students are studying during these days of war, particularly those in Moscow medical schools. In the fall of 1941 the work of the Moscow medical schools was disrupted temporarily during the fierce drive of the Nazi armies on the Soviet capital, but this situation lasted for only two months. The main body of students and professors was evacuated to other cities farther in the rear in the same manner as were evacuated all

From the First Moscow Medical Institute, Union of Socialist Soviet Republics.

the institutes which had existed in the regions occupied by the Nazis. All these schools are now carrying on their normal teaching and research functions just as they had been doing previous to their removal into the interior of the country. Further, as one may judge from the various periodical journals and reports of conferences, the standards of work and quality of these schools and institutes has not been lowered nor has it remained static at the same high level which it had reached prior to the war, but it has actually been greatly raised and improved.

In speaking of the problem of the preparation of the individual medical students for their work, it must be pointed out that this is often carried out in spite of great difficulties. Among these the most pressing are: the material problems of existence and the questions of food and lodging created as a result of dislocation and hardships wrought by the war. These cannot be divorced from the basic procedure of study, since they undoubtedly, under the present situation, require a great deal of time and energy to resolve.

However, each student with his great love of country and his consciousness of the debt of each citizen to his state and its people carries on his work selflessly and with the greatest success and achievement.

THREE TONS OF QUININE GIVEN TO ARMED FORCES

More than 3 tons of quinine, about 9,000,000 doses of 5 grains each, were presented to the armed forces by the American Pharmaceutical Association on May 14, according to the *Evening Star* (Washington, D. C.). The collection of quinine was begun on February 15 by thousands of American druggists (THE JOURNAL, Oct. 3, 1942, p. 377). The gift was received on behalf of the Army and Navy by Chairman May of the House Military Affairs Committee and Admiral Ross T. McIntire, Surgeon General of the Navy, at brief ceremonies at the institution's headquarters, 2215 Constitution Avenue, Washington, D. C. The quinine will be reprocessed in Navy laboratories and made available immediately to men in uniform. Dr. E. F. Kelly, secretary of the American Institution of Pharmacy, estimated the market value of the quinine at $88,500.

PERU DONATES 100 POUNDS OF QUININE

The President of Peru recently gave to President Roosevelt 100 pounds of quinine, which was officially presented to the American Pharmaceutical Association, custodians of the National Quinine Pool, during a reception at the Hotel Shoreham in Washington, D. C., the Bureau of Medicine and Surgery, U. S. Navy, announced on May 27.

RESTRICTIONS REMOVED ON USE OF STEATITE TALC

The War Production Board issued on April 30 Conservation Order M-239 as amended. The new regulation removes the existing restrictions on the delivery and use of steatite talc for other than specified uses, establishes controls over the production and grading of steatite talc, provides a system of inventory control based on maximum consumer stocks, and releases all frozen stocks of steatite talc purchased prior to the original issuance of M-239 (Oct. 13, 1942). Consumer inventory restrictions on steatite talc under the amended order vary according to the kind of talc and its intended use. In the case of talc other than steatite talc, regardless of use, a six months supply is permitted, while in the case of steatite talc to be held by dealers or distributors a two months supply is allowed. Producers will file monthly reports on form PD-862 on all types of talc received and ground. Consumers will report on form PD-863, on a quarterly basis, all types of talc received or used and indicate the end use to which this material is put.

WAR CIVILIAN SECURITY PROGRAM

The Federal Security Agency has published a general statement of the War Civilian Security Program as it affects members of the Citizens Defense Corps of the Office of Civilian Defense, Aircraft Warning Service and Civil Air Patrol. The temporary War Civilian Security Program of the Federal Security Agency includes medical care, public assistance and stated cash benefits for civilians whose aid is necessitated by enemy action. The purpose of this statement is to outline the program only as it affects certain civilian defense workers injured in the performance of official duties. Additional information may be obtained from the field representatives of these agencies.

PUBLIC HEALTH UNDER HITLER

The Russian Tass news agency quoted reports from Geneva as saying that a German military delegation visiting Budapest recently had "demanded" the mobilization of 3,000 Hungarian surgeons and "surgeon's assistants" for service with the Nazi forces.

The Tass dispatch, reported by the Federal Communications Commission from an English language Morse code transmission, said that Nazi officials had also demanded the mobilization of 70 per cent of the remaining civilian doctors in Rumania.

As stated in the Hungary *Pest* of February 5, the Alispan of Pest country, Laszlo Endre, in his report for the past quarter says, *Inter alia,* that the shortage of doctors is increasing. There are twenty-four district medical officers' posts vacant, and forty-five district medical officers' posts are being dealt with by deputies. There are areas where two or three communities are without doctors, because so many medical men are on military service.

The *Medizinische Klinik,* Berlin, of February 5 published a report of the German medical conference in Prague, Czechoslovakia, on June 19, 1942. Dr. Kindermann gave a lecture on the frequency of tuberculosis in Prague. Tuberculosis was responsible for 214 deaths per hundred thousand inhabitants in 1922, while in 1936 the figure was 126. It rose again sharply in 1941 to 156 per hundred thousand inhabitants. The proportion between the sexes was 100:190, with a higher mortality rate for male patients. (The equivalent figures for the old reich territory were 100:120.) In the last few years some 1,200 people died annually of pulmonary tuberculosis in Prague, which would correspond roughly to about 4,500 cases of open pulmonary tuberculosis. This would mean that 45 people there out of each 10,000 suffer from this disease, while in the reich there are only 30 to 40 cases per 10,000. By compulsory registration, 2,000 of these 4,500 cases have become known and are being treated.

In an article on the diet of patients in wartime by Dr. W. Gerke, reported to the Office of War Information, the following advice is given: "Supplementary food should not be prescribed too freely, particularly in such cases of patients suffering from malign tumors, because it is quite senseless to ask for creamy milk, butter and eggs to be given to a patient suffering from the last stages of cancer. Adding these valuable foods to the diet of a cancer patient who, in the opinion of his doctor, is not expected to live not only involves a loss to our total food resources, it also is not to the interest of the patient or his relatives to prolong the usually very painful last stage by additional food of high caloric value."

The German *Reichs-Gesundheitsblatt* of February 3 contained an article by Dr. R. Rose on new ways of combating lice and describing the different methods for delousing. He contends

that serum prophylaxis plays only a minor part in the prevention of typhus and that the main point is the thorough extermination of the lice. This is the only means of surmounting the dangers from this disease. The chemicals and methods used in delousing do not at the same time act as disinfectants, as the delousing of infected people is not the duty of an ordinary delousing station but the task of the fever hospitals. Some of the methods mentioned are hot air, prussic acid vapors, a new and highly poisonous substance called Ventox, and finally the dry cleaning of clothes by means of "tetromin." It must always be borne in mind that all materials used for delousing are made from chemicals which are in short supply and should therefore be applied sparingly.

Le Soir of January 30-31 made the following announcement: "The secretary general of the Ministry of the Interior and of Public Health in Belgium has decided that expectant and nursing mothers are to be allowed precedence in the queues outside shops. On presentation of a special card these women will be able to be served before others. In the event of this right to priority not being respected, the person concerned may of course appeal to the police or gendarmes who are there to keep order in the queue. Any complaints should be addressed to the Infants' Welfare Center by whom the card was issued."

In Kassel, according to the Hamburg *Fremdenblatt*, of January 10, the 93 year old Dr. Karl Hauptmann, an eye specialist, has resumed practice as locum tenens for a younger colleague who has been called up.

According to the *National Zeitung*, Essen, Poland, of January 7, in order to encourage German families to have many children the town of Leszno (Lissa) in the Warthegau has come to an exemplary decision. With a view to promoting germanization in the reconstructed territories, families with three children will receive special premiums for every additional child, i. e. 25 reichsmarks for the fourth child, 50 for the fifth, 100 for the sixth and 150 for any further child. The payment will always be effected on the "day of national regeneration," January 30. In addition parents will receive a lump sum of 20 reichsmarks for the fourth and every additional child when it starts going to school as a school allowance (einschulungbehilfe). Furthermore, the fourth and every additional child receives a clothing allowance when joining the "jungvolk," or BDM. These allowances are conditional on the parents having to provide for at least three children.

In an article dealing with hunger edema, the *Bulletin de l'Académie royale de médecine de belgique*, 1942, it is stated that 48 patients suffering from this disease visited the hospital. The protein osmotic pressure varied between 12 and 35 cm. In 77 per cent of the cases an abnormally low percentage of assimilation was evident. Bradycardia was a frequent appearance; the lowest pulse rate was 38. Diuresis usually set in once the patient was in the hospital. The protein osmotic pressure hardly alters after the edema has disappeared. Relapses are frequent when the patients leave the hospital and could be avoided only if the food supply was improved.

According to Transocean, France, of March 16, 2,000,000 Frenchmen have died as victims of venereal disease in France during the last ten years, and some 5,000,000 Frenchmen are suffering from syphilis today, according to statements made by the director of the Prophylactic Institute of Paris, Dr. Arthur Wernes, in an interview granted to Paris *Sois*. Dr. Wernes declared that during the last three years alone infections have trebled. The nation's life now depends on the effective combating of venereal disease, which is vitally threatening the French population.

NPD of March 15 reports from Hamburg that the Asid Serum Institute in cooperation with Prof. Dr. Kuster of Leipzig has discovered a new means of combating infectious diseases. It is the blood lost by mothers in childbirth which has not heretofore been put to any use. This new serum, "Homoseran Asid," is produced by blending the blood of many thousands of mothers. It is then preserved and its quality examined by the state office for testing immunization serums. So far only Germany has succeeded in making use of this serum provided by nature. The serum can also be used for blood transfusions without regard to the blood group of the donor or the patient.

According to Radio Paris of March 15 the French Corporative Health Group has made interesting suggestions to the public authorities relating to the work of doctors, chemists and dentists. These plans include the completion of one year's effective rural service, of which six months would be spent in social agricultural service by students in the categories mentioned. A second year for continuing study would be combined with social service in factories assisting doctors of big concerns.

The *Reichgesetzblatt* of March 16 publishes the regulation for the protection of marriage, the family and motherhood, dated March 9, to take effect a fortnight after publication. It was also to apply in the incorporated eastern districts. Paragraph 3 says, *inter alia*, that whoever refuses assistance to the woman bearing his child will be liable to imprisonment. She may need help during pregnancy or at the birth, and without it her life or that of the child may be in danger. Paragraph 7 reads: Whoever manufactures, advertises or sells means or objects intended to prevent or interrupt pregnancy or prevent venereal diseases purposely or contrary to regulations will be sentenced to imprisonment for up to two years. Paragraph 9 reads: The reich minister of the interior will regulate the manufacture, advertisement and sale of means and objects for the prevention or interruption of pregnancy or the prevention of venereal diseases.

The *Deutsche Zeitung in den Niederlanden* of March 8 states that, in answering the call of the SSErsatzkommando, 35 Dutch voluntary auxiliary nurses met at the Hague on March 6, before their departure for Dommeren, where they will take a theorectical course of training. Obsertführer Dr. Reuter, German Red Cross deputy in the Netherlands, addressed the girls, who, after completing the theoretical training, will have a practical hospital training before joining the German Red Cross.

According to a short wave broadcast from Berlin, April 5, Professor Finsterer of Vienna has successfully performed several operations in which the stomach was completely removed and the intestine sewed to the esophagus. It is reported that these patients still retain the normal sensation of hunger, and that therefore the scientific assumption of hunger pangs originating in the stomach is false.

Het Nieuws van den Dag, Netherlands, of March 8 gives the following categories of persons who will be considered for vitamin C tablets, which will be supplied by the Government Office for Food Suppiy in Wartime: (*a*) Pupils in elementary schools will receive three 50 gram tablets a week. (*b*) Young and expectant mothers who produce a doctor's certificate saying that they are in their fifth month of pregnancy can get seventy-two tablets of 50 Gm. each. This also applies to young mothers who have a child which was born between Dec. 1, 1942 and March 28, 1943. (*c*) Certain groups of laborers will, in agreement with the enterprises by which they are employed, be supplied with tablets for a temporary period. (*d*) If possible, the tablets will also be supplied to very young children. A further announcement will follow.

The *Bulletin de l'Ordre des Pharmaciens*, Belgium, of March 7 states that insulin is very scarce and that there is also a shortage of tubes. "Consequently diabetic patients will soon be unable to obtain insulin. Chemists should therefore do their utmost to collect the tubes."

ORGANIZATION SECTION

OFFICIAL NOTES

COMMITTEE ON AMERICAN HEALTH RESORTS RECOMMENDS THAT WORD "CURE" BE AVOIDED

The Committee on American Health Resorts has authorized publication of the following statement.

W. W. BAUER, M.D.

The word "cure," analogous to the German "kur," has become traditional in connection with health resorts. "Cure" is a word which the American people associate with complete relief from disease or from symptoms, whereas the same word as used in health resort terminology refers rather to the program and procedure involved in treatment; that is, to the method, not the result. The Committee recognizes that traditional use of words cannot be modified arbitrarily, but the Committee cannot allow the impression to be fostered that complete relief from disease or from symptoms will necessarily result from health resort treatment. The Committee recommends that the use of the word be avoided whenever possible.

For the present the Committee will require that, in the printed matter issued by American health resorts listed under the Committee's rules, the word "cure" shall always appear in quotation marks except in instances in which its significance actually and justifiably is that of complete relief from disease or the symptoms thereof. The first occurrence in any piece of printed matter of the word "cure" shall, in addition to quotation marks, bear an appropriate reference mark and a footnote which shall read:

"Cure" means a treatment program at a health resort and does not refer to the eradication of the medical condition.

DOCTORS AT WAR

The last radio broadcast of Doctors at War by the American Medical Association in cooperation with the National Broadcasting Company and the Medical Department of the United States Army and the United States Navy will be heard on Saturday, June 19, at 5 p. m. Eastern War Time (4 p. m. Central War Time, 3 p. m. Mountain War Time, 2 p. m. Pacific War Time). An exception is the Chicago area, where the broadcast will be heard by transcription at 10:30 p. m., Saturday, over Station WMAQ.

The June 19 program is entitled "Report to America." On this program will appear two Army medical officers broadcasting by short wave from two foreign theaters of war, one Navy officer broadcasting from a foreign theater and one Navy officer broadcasting from a home base. The names of these officers and their locations are not divulged in advance for military reasons. For the same reason their subjects will not be announced.

SUMMER HEALTH HINTS

The next three programs for the new series of broadcasts to be given over radio station WLS Thursday afternoons at 2:45, Central War Time, under the title "Summer Health Hints" will be as follows:

June 17. "Safety in Swimming."
June 24. "Sunburn—Tan—Freckles."
July 1. "Heat and Sun."

MEDICAL LEGISLATION

MEDICAL BILLS IN CONGRESS

Changes in Status.—S. Res. 74 has been reported to the Senate, proposing to authorize the Senate Committee on Education and Labor, or a subcommittee thereof, to make a full and complete study and investigation, in cooperation with such public and private agencies and such persons as it might see fit to consult regarding the distribution and utilization of medical personnel, facilities and related health services. H. R. 2664 has passed the House and Senate, a bill to provide for the training of nurses for the armed forces, governmental and civilian hospitals, health agencies and war industries through grants to institutions providing such training.

Bills Introduced.—S. 1161, introduced by Senator Wagner, New York, for himself and Senator Murray, Montana, and H. R. 2861, introduced by Representative Dingell, Michigan, propose to create a Unified National Social Insurance System to provide, among other things, temporary and permanent disability benefits, maternity benefits and medical and hospitalization insurance benefits.

STATE MEDICAL LEGISLATION

Alabama

Bill Introduced.—S. 168 proposes the submission to the voters of an amendment to the state constitution authorizing the legislature to appropriate such portion of the surplus of the proceeds of the state income tax as it deems advisable for the purpose of public health and public welfare, including old age assistance.

California

Bills Enacted.—A. 667 has become chapter 779 of the laws of 1943. It amends the health and safety code by, among other things, adding thyroid to the list of drugs which may be sold only on the written prescription of a member of the medical, dental or veterinary profession who is licensed by law to administer such drug and by prohibiting the sale of any drugs, medicines or other substances intended to be used for the cure or treatment of gonorrhea, syphilis, chancroid, lymphogranuloma inguinale or granuloma inguinale except on written order of a duly licensed physician. A. 1287 has become chapter 883 of the laws of 1943. It amends the education code by authorizing boards of education to grant health and development certificates to persons holding a certificate of registration as an audiometrist issued by the state board of public health; by providing that the qualifications of an otologist shall be a physician's and surgeon's certificate and a health and development cerificate; by providing that the qualifications for an audiometrist shall be a certificate of registration as an audiometrist issued by the state board of public health and a health and development certificate; and providing that no otologist or audiometrist shall be employed or permitted to supervise the health and physical development of pupils unless he holds a health and development certificate.

Florida

Bills Introduced.—S. 595 proposes that the responsibility for the enforcement of laws relating to public health and to the practice of medicine, surgery, chiropractic, naturopathy, nurs-

ing and midwifery shall rest on all law enforcement officers of the state of Florida and the counties thereof and on the state board of health acting through its duly appointed agents. S. 596 proposes to require every holder of a license to practice medicine, pharmacy, osteopathy, chiropractic, naturopathy, nursing, midwifery or any other medical or material method of the practice of the healing art to record his license in the office of the clerk of the circuit court of the county in which he intends to practice and to obtain a certificate of registration annually from the secretary of the state board of health. The fee for such annual certificates shall be $1. S. 621 proposes to define a public hospital as one which enjoys an immunity or exemption from the payment of taxes or which contracts with the state of Florida or with any county or municipality therein for the hospitalization, care or treatment of indigent or other persons referred to the hospital by any public authority. The bill then proposes that in the management of any such hospital no discrimination shall be made against practitioners of any regular school of medicine and surgery recognized by the laws of Florida and all such regular practitioners shall have equal privileges in treating patients in said hospital; the patient shall have the right to employ, at his or her own expense, his or her own physician, and when acting for any patient in such hospital the physician or surgeon employed by such patient shall have exclusive charge of the care and treatment of such patient, and nurses therein shall, as to such patient, be subject to the directions of such physician; every licensed physician residing in the county where such hospital is situated shall automatically, by virtue of his residence therein and his license to practice, be and continue to be on the staff and a member of the staff of such hospital and so long as his right to practice medicine in Florida remains unrevoked he shall not be demoted or removed from said staff, nor declassed to an associate membership, or otherwise deprived of any of the honors, rights and privileges of full membership on the staff. Finally, the proposal would authorize any physician who has been discriminated against to sue the hospital and recover therefrom at the rate of $50 for each day the discrimination continues.

Bills Passed.—S. 580 passed the senate, May 21. It proposes that the several colleges and universities located and operating in the state of Florida be authorized, directed and required to waive the last two semesters of preparatory college work required for entrance to the various professional schools operated by them in all instances where the applicant for admission and study in such professional colleges has completed all preparatory college work required for such admission except two semesters or less of study in the preparatory subjects and where such applicant has failed to complete his or her last two semesters or less of preparatory study by reason of his or her having been inducted into any branch of the armed forces of the United States during or after the month of January 1940. S. 641 passed the senate, May 25. To amend the medical practice act, it proposes that the clerk of the circuit court shall not accept for recording and shall not record any license to practice medicine dated after the effective date of the act unless the same has been presented to him for recording on or before sixty days after the date of the license and provided further that no license to practice medicine dated prior to the effective date of the act may be recorded by the clerk of the circuit court unless it has been presented to him for recording on or before the expiration of six months from and after the effective date of the act or within sixty days after the date of recertification thereof by the board of medical examiners. S. 653 passed the senate, May 26. It proposes that the disablement or death of an employee resulting from an occupational disease shall be treated as the happening of an injury by accident and the employer's liability for the payment of compensation, medical and other benefits under the Florida workmen's compensation law shall be extended to such diseases. The proposal then lists twenty-four diseases which are to be deemed occupational in nature.

Illinois

Bills Introduced.—S. 525, to amend the medical practice act, proposes that students matriculating or entering on a medical course during the years 1942, 1943 and 1944 may take a course the elapsed time of which is not less than thirty-six months rather than forty months as previously required. The purpose of this proposal is to enable graduates of accelerated medical schools to obtain licensure in Illinois. S. 551 proposes the appointment of a committee to investigate chronic diseases among indigents with the duty, among others, to make a complete and thorough survey of the number of persons in Illinois in indigent circumstances who are afflicted with chronic diseases not already provided for in existing state institutions and who require hospital care at public expense. H. 760 proposes circumstances under which the voters of a county may vote on the proposition of whether or not the county should provide for the treatment of persons afflicted with cancer or tumor.

Massachusetts

Bill Introduced.—H. 1791, to amend the law relating to the registration of nurses, proposes that during the existing war applicants for registration need only be 20 rather than 21 years of age.

Bill Enacted.—H. 1519 has become chapter 233 of the laws of 1943. It provides that hospital records shall be admissible as evidence in a court so far as they relate to the treatment and medical history of a case and authorizes a court to admit photographic or microphotographic copies thereof in evidence.

Missouri

Bill Introduced.—H. 575, proposing to amend the criminal law concerning abortions by eliminating therefrom an existing proviso exempting instances in which an abortion or miscarriage was procured in order to preserve the life of the mother or unborn child when such action was necessary in the opinion of a duly licensed physician, was amended in the house so as to exempt the performance of an abortion when the same is necessary to preserve the life of the woman or that of an unborn child or, if the person performing same is not a duly licensed physician, unless the said act has been advised by a duly licensed physician to be necessary for such a purpose.

Nebraska

Bills Enacted.—Bill No. 139 was approved, May 25. It amends the law regulating the practice of medicine and surgery by providing, among other things, that (1) persons serving an internship in an accredited hospital shall be exempt from the provisions of the law, (2) osteopathic licentiates shall be exempt from the law so long as they do not represent themselves to be physicians and surgeons or profess or hold themselves out to administer or prescribe drugs in any form or perform operative surgery with instruments or practice obstetrics, (3) chiropractic licentiates shall be exempt from the provisions of the law so long as they confine their practice to the treatment of human ailments by the adjustment by hand of any articulations of the spine, (4) any limited licentiate shall be exempt from the law so long as he confines himself strictly to the field for which he is licensed and does not hold himself out as administering or prescribing drugs in any form or performing operative surgery or practicing obstetrics and (5) an approved medical school may now give the required four courses of lectures of eight months each without the limitation that no two of such courses be held in one year, the amendment providing merely that no two such courses shall be held concurrently. The bill further provides that any person now licensed to practice osteopathy in the state of Nebraska may, if application is made prior to July 1, 1948, take the regular examination given before the board of examiners in medicine and surgery and, if successful, he shall receive a license to practice medicine and surgery in the state of Nebraska; provided, however, that any doctor of osteopathy now licensed and practicing in the state of Nebraska who is able to show satisfactory evidence of having taken and successfully passed the regular examination in medicine and surgery shall be issued a license hereunder on payment of the prescribed fee. Bill No. 334 was approved, May 24. It prohibits the sale and distribution of any material or substance containing live micro-organisms which are pathogenic to human beings except pursuant to a permit issued according to rules and regulations promulgated by the director of health or the state veterinarian.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

ARIZONA

State Medical Election.—Dr. Dan L. Mahoney, Tucson, was chosen president-elect of the Arizona State Medical Association at the annual meeting, April 30, and Dr. Otto E. Utzinger, Ray, was installed as president; other officers are Drs. Florence H. B. Yount, Prescott, vice president, Frank J. Milloy, Phoenix, secretary and Clarence E. Yount, Prescott, treasurer.

CALIFORNIA

State Medical Election.—Dr. Lowell S. Goin, Los Angeles, was chosen president-elect of the California Medical Association at its annual meeting in Los Angeles in May and Dr. Karl L. Schaupp, San Francisco, was installed as president. Dr. George H. Kress, San Francisco, was reelected secretary-treasurer.

Health Officer's Manual Recommended for Spanish Publication.—The chief of publications, press division, Coordinator of Inter-American Affairs, plans to finance the translation into Spanish of the Health Officer's Manual by Dr. Jacob C. Geiger, San Francisco. The volume has already been translated by Dr. Oswaldo Cifuentes, Santiago, who proposes to publish it under his direction as a publication of the Direccion General de Sanidad of the Chilean government.

Corporation with Fictitious Name Cannot Employ Physicians.—In an opinion, April 23, the attorney general ruled that a physician may not operate a liquor cure establishment under a fictitious name and that it is not legal for a corporation, using a fictitious name, to hire a physician as its manager. The opinion to the board of examiners in Sacramento stated that under the law a corporation cannot practice medicine or surgery directly or indirectly, hence it cannot get a license to practice, according to the Los Angeles *Times*.

Personal.—Dr. Earl H. Coleman has been appointed city health officer of Fresno to succeed the late Dr. Carleton Mathewson. Dr. Coleman will serve on a part time basis.—— James G. Stone, Los Angeles, executive secretary of the Los Angeles Tuberculosis and Health Association, was to join the administrative staff of the National Tuberculosis Association on April 15.—— Lloyd E. Webster, Los Angeles, has been appointed director of health activities for the Los Angeles County Board of Education.

New Dean at University of Southern California.—Dr. Burrell O. Raulston, professor and head of the department of medicine and director of clinical teaching since 1930, has been appointed dean and professor of bacteriology at the University of Southern California School of Medicine, Los Angeles. Dr. Seeley G. Mudd has resigned as dean but will continue as professor of experimental medicine. Dr. Raulston was born in Jefferson City, Tenn., in 1887. He graduated at Rush Medical College in 1915. He subsequently served on the staff, first as instructor in pathology and later as assistant clinical professor in medicine.

CONNECTICUT

Personal.—Brig. Gen. James Stevens Simmons, M. C., A. U. S., director of the preventive medicine division of the Office of the Surgeon General, U. S. Army, has been appointed lecturer in public health on the staff of the Yale University School of Medicine, New Haven.

School to Study Alcoholism.—A six week session of a school of alcohol studies at Yale University has been announced in the New York *Times*. It will be sponsored by the scientists of the Yale Laboratory of Applied Physiology, of which Dr. Howard W. Haggard, New Haven, is director, and will enroll seventy-five educators, social workers, clergymen and enforcement officers. The school will open on July 8 and continue through August 18 under the direction of Elvin M. Jellinek, M. Ed., of the laboratory of applied physiology. He will be assisted by an advisory staff and faculty equipped to give opinion on the legal, medical, social and educational aspects of alcohol problems.

GEORGIA

Rapid Treatment Center.—An allocation of more than $262,000 has been approved by the Federal Works Agency to purchase land, buildings and equipment and finance alterations to the existing buildings on Oatland and White Marsh islands near Savannah for the establishment of a rapid treatment center for women infected with venereal diseases. According to the *Military Surgeon*, the center will be operated by the public health service with funds obtained from the Federal Works Agency under the provision of the Lanham act.

State Medical Meeting and Election.—Dr. Cleveland Thompson, Millen, was chosen president-elect of the Medical Association of Georgia at its annual meeting in Atlanta, May 11-14, and Dr. William A. Selman, Atlanta, was installed as president. Dr. Edgar D. Shanks, Atlanta, was chosen secretary-treasurer for the eighth term. The ninety-fourth annual session of the state medical association was held at the Biltmore Hotel and speakers on the scientific session included Rear Admiral Ross T. McIntire, surgeon general, U. S. Navy, who delivered the Abner Wellborn Calhoun Lecture on "Medical Achievements in This Present War"; Drs. Chauncey C. Maher, Chicago, "Complications of the Acute Coronary Thrombosis," and James H. Means, Boston, "Practical Points in the Diagnosis and Treatment of Graves' Disease." Dr. James E. Paullin, Atlanta, President of the American Medical Association, spoke on "The Role of the Medical Profession in the Present War."

ILLINOIS

State Medical Election.—Dr. Everett P. Coleman, Canton, was chosen president-elect of the Illinois State Medical Society at the annual meeting in Chicago in May and Dr. George W. Post, Chicago, was installed as president; other officers are Drs. Robert S. Berghoff and Wade C. Harker, Chicago, vice presidents, and Harold M. Camp, Monmouth, who was reelected secretary-treasurer.

Chicago

Meeting of Bacteriologists.—Dr. Ludvig Hektoen was the principal speaker at the spring meeting of the Society of Illinois Bacteriologists at the Chicago Women's Club on May 21. His subject was "Fragments of the History of Bacteriology in Chicago."

Chicago Given Safety Award.—The grand award of the National Safety Council for 1942, presented to Mayor Kelly on May 20, symbolizes the winning by Chicago of first place in the national safety contest for 1942 and was made on the city's reduction of traffic deaths below the average of the preceding three years and on general accident prevention efforts. A total of 466 persons died from traffic accidents in Chicago in 1942 as compared with 623 in 1941.

Medical Service Plans Council.—At a luncheon session of the Medical Service Plans Council of America in the Palmer House, June 6, Mr. A. M. Simons, staff associate, Bureau of Medical Economics, American Medical Association, was the guest speaker on "Evolution of Medical Service Plans." At the afternoon session "Authorization of Payments for Services in Administering a Medical Service Program" was discussed by Drs. Norman M. Scott, Trenton, N. J., Medical-Surgical Plan of New Jersey, George F. Moench, Hillsdale, Mich., of the Kellogg Foundation and James C. McCann, Worcester, Mass., Massachusetts Medical Service.

Raymond Allen Named Dean of Illinois.—Dr. Raymond B. Allen, executive dean of the Chicago Colleges of the University of Illinois, has been appointed dean of the medical school, effective September 1. He succeeds Dr. David J. Davis, who is retiring. Dr. Allen will continue in his present position of executive dean of the Chicago departments, which include the colleges of medicine, dentistry and pharmacy and other institutions associated with these units. Dr. Allen graduated at the University of Minnesota Medical School, Minneapolis, in 1928. From 1934 to 1936 he was associate dean in charge of graduate studies at the College of Physicians and Surgeons of Columbia University and associate director of the New York Post-Graduate Medical School and Hospital at Columbia from 1933 to 1936, when he became dean of Wayne University College of Medicine, Detroit. In 1939 he came to the University of Illinois.

LOUISIANA

New Professor of Pathology.—Dr. Granville A. Bennett, associate professor of pathology, Harvard Medical School, Boston, has been appointed professor of pathology and bacteriology at Tulane University of Louisiana School of Medicine, New Orleans.

Institute of Mental Hygiene and Guidance Center.—The New Orleans Institute for Mental Hygiene recently dedicated its new home at 1737 Prytania Street. Rev. Thomas V. Moore, O.S.B., professor of psychology at the Catholic University of America, Washington, D. C., spoke on "The Child Guidance Center and Its Service to the Community" and Robert L. Sutherland, Ph.D., director of the Hogg Foundation, University of Texas, Austin, Texas, "Social Gains in Wartime." The new home is an old residence of seventeen rooms which has been renovated by the city of New Orleans. Dr. Martha G. W. MacDonald, who has been director of the clinic since its beginning, is on leave of absence as psychiatric consultant for the Children's Bureau, Department of Labor, Washington, D. C. During her absence the consulting services of a number of neuropsychiatrists in the community have been available and Dr. Milton E. Kirkpatrick, New York, director of the division on community clinics of the National Committee for Mental Hygiene, has intermittently spent helpful periods at the clinic. The New Orleans Institute for Mental Hygiene, which sponsored the Guidance Center, was founded in 1938 by a gift of Mr. Samuel Zemurray; its affairs are administered by a private board which directs the policies of the clinic and employs the professional personnel. Prior to occupying its new quarters the clinic was housed in the Tulane University Medical School Building. The Guidance Center seeks to make available specialists for consultation concerning educational, social and emotional development of normal children. In 1939, the first year of operation of the clinic, 375 children were given service; 363 children were handled the following year and 314 in 1941.

MARYLAND

State Medical Election.—Dr. Jacob W. Bird, Sandy Spring, was elected president of the Medical and Chirurgical Faculty of the State of Maryland at its recent annual meeting in Baltimore in April. He will take office on Jan. 1, 1944. Dr. William H. Toulson, Baltimore, is the secretary. The next annual meeting will be at Baltimore, April 25-26, 1944.

MASSACHUSETTS

Dr. John Downing Named Professor of Dermatology.—Dr. John G. Downing, Boston, assistant professor of dermatology at Tufts College Medical School since 1932, has been appointed professor of dermatology and head of the department at Boston University School of Medicine. Dr. Downing was also recently named dermatologist and chief of the dermatologic service at Massachusetts Memorial Hospitals. Dr. Downing graduated at Harvard Medical School in 1915. He served in the U. S. Navy, 1917-1921, during part of which time he was medical officer of the U. S. Naval Hospital in Chelsea. He is consultant to the U. S. Public Health Service and the U. S. Veterans Administration, and also president of the New England Dermatological Society.

MICHIGAN

Henry Russel Award.—Dr. Carl Alfred Moyer, assistant professor of surgery at the University of Michigan School of Medicine, Ann Arbor, was recently presented with the annual Henry Russel Award given to a member of the university for outstanding work. Dr. Moyer's research was on the physiology of breathing and the effect of various drugs on the respiratory processes. He graduated at the university in 1937.

Hospital for "War Worker Patients."—An unused three story building at the Dr. William J. Seymour Hospital, Eloise, has been leased by the Wayne County Board of Supervisors to a private organization of citizens, who will operate it as a general hospital for the use of "war worker patients" of the medical practitioners in the western part of the county. The action followed a survey by the local procurement and assignment committee in cooperation with the Wayne County Medical Society showing that an acute population problem existed in the western half of the county, which is mostly rural and showing a population increase from 97,000 to 141,000. The county as a whole has 1 general hospital bed for every 311 people, but the western section has only 1 for every 1,468 persons. When the newly acquired building at Eloise is in operation, about 100 more beds will be added to the present 96. The building will be leased to a nonprofit group of interested citizens known as the People's Community Hospital, Inc. The corporation will contract to arrange for the organization of a medical staff and administrative personnel. By leasing the building outright and charging for services as an independent contractor, the county of Wayne is thus kept distinctly out of the field of private hospitalization, it is announced.

Opening as Director of New County Health Department.—The Civil Service Commission of Wayne County announces that applications are now being accepted for the position of director of the recently established county department of health. The salary will be $7,000 a year to start and applications, which may be obtained from the civil service commission, 521 County Building, Detroit, must be delivered to the office of the commission on or before 4:30 p. m. Tuesday, July 6, or be postmarked before midnight of that date. The Wayne County board of supervisors recently established a health department to provide public health services throughout the county in both indigent and nonindigent cases, except that it shall not have jurisdiction in nonindigent cases in cities having an organized health department with full time health officers, except that such cities may elect to join with the county in the organization. The director selected will be expected to organize and develop, as well as to administer, a comprehensive program of health services in the county. The examination will be unassembled and candidates will be rated on the basis of experience and training in the field of public health. Candidates may be required to appear at their own expense for an oral interview. Successful candidates for the position of director of health must have received the degree of doctor of medicine from a recognized medical school and must have satisfactorily completed at least one year in residence in the study of preventive medicine at a recognized university school of public health. They must have had at least one year of clinical experience, preferably in a hospital of acceptable standards, including, preferably, three months' work in pediatrics and a similar period in infectious diseases. In addition, the candidates must have had at least six weeks of field experience in an established state or local department of public health. Eligibility for medical licensure in the state of Michigan at the time of appointment is required. Exceptions to the foregoing standards will be made only for candidates who have, through experience and practical training, proved ability to perform successfully the duties of the position. The examination is open to any qualified citizen of the United States.

MISSOURI

State Society Gives Full Support to Hygeia.—The Missouri State Medical Association, in a resolution adopted at its annual meeting in St. Louis, April 18, gives full support and complete cooperation to its Woman's Auxiliary in the efforts to disseminate health information through *Hygeia*, the Health Magazine. Recognizing the great public need for reliable health information and in recognition of the service that *Hygeia* can perform in terms of industrial, civilian and community health, through the resolution the house of delegates of the association endorsed the publication and recommended that officers and members of the county medical societies of the association urge wider recognition of it in their communities. The resolution also urged the introduction of *Hygeia* in war industries, army camps, U. S. O. centers, reception rooms of physicians and dentists and among their patients, parent-teacher organizations, private clubs and other community centers.

NEBRASKA

State Medical Election.—Dr. Floyd L. Rogers, Lincoln, was chosen president-elect of the Nebraska State Medical Association as its annual meeting in May. Dr. Albert L. Cooper, Scottsbluff, was installed as president. Dr. Roy B. Adams, Lincoln, is the secretary-treasurer. The 1944 session will be held in Omaha sometime in May.

NEW HAMPSHIRE

State Medical Election.—Dr. James W. Jameson, Concord, was elected president of the New Hampshire Medical Society at its recent annual meeting in Manchester in May, Dr. Fred Fernald, Nottingham, was named vice president and Dr. Carleton R. Metcalf, Concord, was reelected secretary-treasurer.

NEW JERSEY

Medal Awarded to Dr. Conklin.—The John J. Carty medal and award for the advancement of science, awarded at the annual dinner of the National Academy of Sciences, April 26, was presented to Edwin Grant Conklin, Sc.D. The citation read "Zoologist, Cytologist and Embryologist; Philosopher, Teacher, and Scientist; Student of Life and of Growth from Lowliest Beginnings to Highest Consummation." Dr. Conklin received his doctor of philosophy degree from Johns Hopkins

University, Baltimore, in 1891 and an honorary degree of doctor of science from the University of Pennsylvania in 1908. He has been lecturer in biology at Princeton University since 1934 and president of Science Service since 1937.

NEW YORK

Physician's Acceptance of Deanship Postponed Because of Illness.—Dr. Charles Oberling, pathologist of the Mary Imogene Bassett Hospital, Cooperstown, and director of the Otsego County Laboratory, who recently accepted an invitation from the Iranian (Persian) government to be dean of the Medical Faculty of the University of Teheran and to act as medical adviser to the Iranian government in public health and hygiene, reached Buenos Aires and had to turn back to this country because of illness. Dr. Oberling, in accepting the appointment, was said to represent the national committee of the Fighting French. The *New York State Journal of Medicine* reported that Dr. Oberling had already spent two years in Iran helping the government to reorganize its medical services.

Commission Named to Study Mental Hygiene Hospitals.—Governor Dewey on May 26 announced the appointment of a five member Moreland Act Commission to formulate a long range program for the improvement of the state's mental hygiene hospitals. The commission is the first of its kind ever appointed under the Moreland Act and will be headed by Archie O. Dawson, lawyer, who recently completed a Moreland Act investigation of conditions at the Creedmoor State Hospital. Other members of the commission are:

Lee B. Mailler, assemblyman, Cornwall, chairman of the state health preparedness commission and superintendent of Cornwall Hospital.

Dr. Peter Irving, New York, secretary of the Medical Society of the State of New York.

Dr. Fraser D. Mooney, Kenmore, medical superintendent of the Buffalo General Hospital and vice president of the American College of Hospital Administrators.

Charles G. Roswell, New York, assistant director and consultant on accounting of the United Hospital Fund.

According to the New York *Times*, Governor Dewey stated that the inquiry will not be of an "inquisitorial" nature and that the commission will undertake the constructive task of improving the mental hospitals and curing conditions in the mental hygiene department described by Mr. Dawson in his Creedmoor report, which suggested evidence of long-standing deterioration and breakdown in the department of mental hygiene.

New York City

Society Recommends Plan for Medical Care.—The committee on medical economics of the Medical Society of the County of New York has issued recommendations pertinent to a plan for medical care. The recommendations have been adopted by the comitia minora of the society and, if accepted by representatives of the city government, would provide medical services at nominal rates for persons of low incomes and establish a central municipal registration bureau. The entire program would be conducted by a nongovernmental, nonprofit agency or corporation, set up with the cooperation of the city government with the board of directors one third city officials, one third physicians selected or appointed by the five county medical societies of Greater New York and one third by prominent laymen acceptable both to physicians and to government representatives. It also was recommended that the medical members shall constitute the medical policy committee and that there shall be no change in the medical policy without its consent. Other recommendations were that the premium charged shall be such that the physician shall receive $2 per house visit and $1 per office visit (to be adjusted at the discretion of the policy committee), that a panel shall be established and patients in their districts shall consult its members, that all licensed doctors of medicine may register for the panel and that special fees for other medical consultants will be set up with due regard to the costs and solvency of the plan. A paid physician would be chief executive of the corporation and the hours for receiving panel calls would be from 8 a. m. to 8 p. m. except in case of emergency. It is also provided that physicians on due notice should have the right to refuse emergency patients and that the patient may change physicians if he desires.

Report on Experiment in Voluntary Health Insurance.—A report on the first two and one-half years of the functioning of the Corlears Hook Medical Association, an experiment in voluntary health insurance among low income families which began in June 1940, was released on April 22. Dr. Morris A. Brand is medical director of the plan, which operates in a slum clearance project in the lower east side of Manhattan, inhabited by 1,771 families, of which 1,000 families are entitled to free care in the city's clinics and are also qualified for membership in the plan because of similar scales of income eligibility. The report states that the results during the two and one-half years of the plan's existence show that a large number of families in the low income groups, despite their eligibility for free city medical services, prefer to pay for their own medical needs provided they are not beyond their means. The study also revealed, it was stated, that such a plan would save considerable funds to the city, lower the demand on the city's hospital facilities and also add a new source of income to physicians in the neighborhood who become members of the plan. The experiment seems to prove that this low income group wants a medical service plan and must have it on a substandard fee basis, it was stated. This was shown by a voluntary enrolment of 45 per cent of those eligible; the decrease in the use of the ambulance from 800 trips in one year prior to enrolment to 148 trips in the first one and a half years as members; by the increased use of the doctor in the home and office, and by the decrease of visits to clinics from 2,816 to about 1,000 in one year for diagnostic and therapeutic facilities at the request of panel physicians. It has been further determined that these people are willing to pay what they can, as shown by the payment of $8,300 during the two and a half years of enrolment, which started without subscribers and rose to an average of 500 families per month. In addition, they paid the expense of medication which a large number of them formerly obtained free of cost in the clinics. They were willing to do that to enjoy private care. Physicians recognize the need for some form of medical service plan and are willing to accept an equitable fee for their services, as manifested by the willingness of neighborhood physicians to serve on the panel. The physicians and the administrative board of the association recommended an increase in the doctor's fee for any future plan it was stated. It has been determined that the diagnostic and therapeutic facilities of a hospital and its clinics can be integrated with the services of the panel physicians.

NORTH DAKOTA

Personal.—Dr. Earl M. Watson, health officer of Cass County, has been appointed health officer of Fargo, succeeding Dr. Elvin L. Sederlin, who resigned recently to become regional health officer of Valley City.——Drs. Frederick W. Fergusson, Kulm, and William H. Long, Fargo, were recently appointed members of the state board of medical examiners. Dr. William F. Sihler, Devils Lake, was reappointed to the board.

Twenty-Five Years of Ophthalmology.—Dr. Tracy W. Buckingham, Bismarck, was elected president of the North Dakota Academy of Ophthalmology and Oto-Laryngology at the twenty-fifth annual session in Bismarck, May 10, and Dr. Frederick L. Wicks, Valley City, was reelected secretary. Speakers at the meeting included Drs. William L. Benedict, Rochester, Minn., on "A Critical Review of the Recent Proposed Treatments of Eye Diseases" and William T. Peyton, Minneapolis, "Brain Abscess."

SOUTH DAKOTA

Division of Public Health Education.—The South Dakota State Board of Health recently established a division of public health education with Mr. I. R. Vaughn, assistant director of the division of vital statistics, in charge.

Dr. Cottam Named Superintendent of Health.—Dr. Gilbert G. Cottam, Sioux Falls, has been appointed superintendent of the South Dakota State Board of Health to succeed the late Dr. John F. D. Cook, Pierre. Dr. Walvin R. Giedt, Vermillion, assistant state health officer and until Dr. Cottam's appointment acting superintendent, has resigned to become epidemiologist for the state health department of Washington.

VERMONT

Rehabilitation for the Tuberculous.—The trustees of the Vermont Tuberculosis Association, Inc., have appropriated $3,000, which will be matched by federal funds, to establish a special rehabilitation program for the tuberculous in the state. According to the *Bulletin of the National Tuberculosis Association*, the money will be expended under the supervision of the committee on rehabilitation of the association in consultation with the rehabilitation division of the state department of education and physicians in the state sanatoriums.

GENERAL

Pediatric Board to Hold Two Examinations.—The American Board of Pediatrics announces that because of the large number of applicants two oral examinations will be held this fall, one in New York, November 20-21, and the other in Cincinnati, December 11. A written examination will be held locally under a monitor, October 8.

Changes at Ciba Pharmaceutical Products.—Dr. Ernest Oppenheimer, formerly of New York, has been chosen vice president of the Ciba Pharmaceutical Products, Inc., Summit, N. J., in charge of medical research, effective within a few months. Mr. J. J. Brodbeck was recently elected president. Lee J. Perrin, New York, was elected chairman of the board of directors, Norman F. Storm vice president in charge of production and Vincent A. Burgher vice president in charge of sales.

Winners in Health Honor Roll Contest.—The U. S. Chamber of Commerce and the American Public Health Association have announced the winners in their annual contest in community health promotion and preservation. More than five hundred and fifty communities participated. The thirteen winning cities are Milwaukee, Madison and Racine, Wis.; Detroit; Baltimore; Greenwich and Hartford, Conn.; Newton, Mass.; Reading, Pa.; Hackensack, N. J., and Peoria, Evanston and La Salle-Peru-Oglesby, Ill. The twenty winning counties are Sanilac, Van Buren and Saginaw, Mich.; Davidson, Gibson and Memphis-Shelby, Tenn.; Fayette, Madison and Jefferson, Ky.; Lauderdale, Washington and Jones, Miss.; Olympia-Thurston and Whitman, Wash.; Arlington, Va.; Forsyth, N. C.; Glynn, Ga.; Gallatin, Mont.; El Paso, Texas, and Santa Barbara, Calif.

Report of Blindness Prevention Group.—The National Society for the Prevention of Blindness expended $167,879 in 1942 to carry out its various activities. Chief on its projects were a glaucoma control demonstration and five eye clinics in New York, from which the society expects to be able to formulate recommendations for a nationwide glaucoma control program. The report indicated that the society had intensified its industrial program brought about by the expansion of industry, increased employment of women and older men and steady acceleration in the production of war materials, all of which have placed an additional burden on eyes. Working with industrial executives, safety engineers and others in establishing eye safety standards, the society has formulated recommendations which, if followed, according to the report, can not only increase efficiency and safety but will make greater manpower available through correction of defective vision among workmen who are otherwise able bodied.

American-Soviet Medical Society Formed.—Dr. Walter B. Cannon, professor emeritus of physiology, Harvard Medical School, Boston, is the president of the American-Soviet Medical Society, a new group founded to meet an increasing demand for information about the results and achievements of Soviet medicine. Dr. Henry E. Sigerist, director of the Institute of the History of Medicine at Johns Hopkins University, Baltimore, is the editor of a journal to be published by the society and to be known as the *American Review of Soviet Medicine*. Temporary offices of the society are at 130 West 46th Street, New York. Through meetings, the publication of a journal and the establishment of a library of information, the society will tell physicians of America and members of the allied professions on what problems Soviet colleagues are working and what is being done to solve these problems. The society will also send American medical books and periodicals to the Soviet Union to keep the Russians informed of scientific developments in this country and to stimulate closer cooperation between the medical corps of the two countries. As soon as conditions permit after the war, the society hopes to promote the exchange of students and scientists and to sponsor study hours in the two countries.

Special Society Elections.—Dr. E. Benjamin Gillette, Toledo, Ohio, was elected president of the Tri-State Medical Society of Indiana, Michigan and Ohio at its annual meeting in Ann Arbor recently and Dr. Floyd R. Nicholas Carter, South Bend, Ind., was chosen vice president. Dr. Oscar P. Klotz, Findlay, Ohio, is secretary and Dr. Fredrick F. Yonkman, Detroit, treasurer. The 1944 convention will be in Toledo. ——New officers of the American Institute of Nutrition chosen at a recent meeting in Detroit include Dr. Howard B. Lewis, Ann Arbor, Mich., president; Icie G. Macy Hoobler, Ph.D., Detroit, vice president; Arthur H. Smith, Ph.D., Detroit, secretary, and William H. Sebrell Jr., Bethesda, Md., surgeon, U. S. Public Health Service, treasurer. ——Dr. Edwin G. Zabriskie, New York, was elected president of the American Neurological Association at its sixty-ninth annual meeting in New York, May 7. Dr. Henry Alsop Riley, New York was reelected secretary. The dates of the next meeting will be decided sometime in December.——Dr. Karl M. Bowman, San Francisco, was chosen president-elect of the American Psychiatric Association at its annual meeting in Detroit in May and Dr. Edward A. Strecker, Philadelphia, was installed as president. Dr. Winfred Overholser, Washington, D. C., was reelected secretary-treasurer.

CANADA

Dr. Dafoe Dies.—Dr. Allan Roy Dafoe, a country practitioner who attained worldwide renown through the birth of the Dionne quintuplets, died at a hospital in North Bay, Ont., June 2, aged 60. Dr. Dafoe died five minutes after he had been admitted to the hospital suffering from pneumonia. Born in Madoc, Ont., May 29, 1883, Dr. Dafoe graduated at the local schools and took his M.B. degree at the University of Toronto Faculty of Medicine in 1907, where he also received his M.D. degree in 1928. He had been carrying on the activities of a simple country doctor in the rural community of Callander, but on May 28, 1934, after he had officiated at the births of the Dionne quintuplets, Dr. Dafoe became an internationally known figure. When he arrived at the Dionne home at 4 o'clock in the morning, two of the babies had been born and the third was arriving. Dr. Dafoe was given the Order of the British Empire by the king. In 1935 he was made an honorary member of the Toronto Academy of Medicine and in 1937 an honorary member of the Ohio State Bureau of Child Hygiene. He had also been medical health officer in North Himsworth Township and an advisory editor of *Parents' Magazine*. In 1942 Dr. Dafoe resigned as physician to the Dionne quintuplets.

LATIN AMERICA

Hospital News.—The new Hospital Infantil of Mexico City was formally opened on April 30. General Manuel Avila Camacho, president of Mexico, presided. Among the speakers were Dr. Federico Gómez, head of the Hospital Infantil, who reviewed the history of the hospital, and Dr. Gustavo Baz, the secretary of public welfare.

Agreement to Develop Quinine Plantation in Guatemala.—The development of the largest cinchona plantation in the Western Hemisphere under an agreement between Guatemala and United States agencies has been announced. The plantation, which is known as "El Porvenir," has been controlled by German interests through the Central American Plantations Corporation, but controlling stock of this corporation now is in the hands of the United States Alien Property Custodian and transfer of the property to Guatemala is being arranged. The agreement for development of the property has been worked out among the Guatemalan government, the plantation corporation and the United States Board of Economic Warfare. The agreement has been ratified by Guatemala's legislative assembly. How many cinchona trees are on the 17,000 acre plantation in the District of San Marcos has not been determined. A large part of the acreage is devoted to coffee. The property is near good roads and only 9 kilometers from the Pan American Highway. Bark may be trucked 35 miles to Ayutla on the Mexican border. From there it can move to the United States by rail. A laboratory has been established at El Porvenir for testing the bark. There will be studies as to the best trees, experiments with grafting and transplanting, and setting out of seed beds. Drying kilns have been set up. It takes only a fourth as much time to dry this way as by the old method of spreading out in patios. Several hundred people live on the plantation, which is on the slopes of Tajumulco, Guatemala's highest mountain. The trees grow mostly at elevations of between 4,000 and 5,000 feet. The mountain rises to 14,000 feet.

CORRECTIONS

Prevention of Sulfadiazine Crystalluria.—In the fourth line of the Current Comment by this title in THE JOURNAL, May 29, page 311, "Gilligan and his colleagues" should read "Gilligan and her colleagues." The author, whose work was referred to in the March *Proceedings of the Society of Experimental Biology and Medicine*, was Dorothy Rourke Gilligan.

Personality Changes Following Substitution Therapy.—In the article by Dr. Jacob Kasanin and Lieut. Col. Gerson R. Biskind entitled "Personality Changes Following Substitution Therapy in Preadolescent Eunuchoidism" in THE JOURNAL, April 24, in the second line of the fourth paragraph of the first column on page 1319, the word "diameter" should have been "circumference."

Foreign Letters

LONDON

(From Our Regular Correspondent)

May 1, 1943.

The Publicity Campaign Against Venereal Diseases

As shown in previous letters to THE JOURNAL, the increase in venereal diseases due to the war and the need to protect our fighting men have made the problem of prevention urgent, and the Ministry of Health has taken the unprecedented step of inserting advertisements in the press throughout the country pointing out the dangers and the action to be taken. The Central Council for Health Education has held a conference in London to discuss health education and venereal disease. The chairman, Dr. Charles Hill, said that the problem could not be effectively tackled until the curtain of secrecy which surrounded it was lifted. Mr. Ernest Brown, minister of health, stated that the public still had a prejudice against the subject being discussed by women which must be broken down. The defense regulation for compulsory treatment (described in a previous letter) was to stop a gap in the treatment service. The press campaign would continue to stress the principle "Clean living is the only way to escape infection." He urged local authorities to take full advantage of posters, leaflets, lectures and films provided by the Central Council for Health Education. The council has been officially recognized as the one agency responsible for the central provision and integration of health education, including venereal diseases. The archbishop of Canterbury, who is president of the council, regarded the problem as primarily a moral one. All that we can do to promote healthy family life, both by adequate housing and by help to parents in the wise upbringing of children, was of inestimable value. He criticized the method followed in the army, which systematically ignored principle and instructed recruits in the use of prophylactics, thus suggesting fornication. What was primarily a moral problem was treated as if it were primarily a medical one. The sacredness of sex must be put first in our educational campaign. In the discussion which followed, some objection was taken to this view. A health officer, Dr. Maitland Radford, thought that a false antithesis between the religious and the secular approach had been suggested. Sex was not universally regarded as sacred. The secular approach allowed a wider attitude in sex behavior than did the religious. But those with different points of view could work together. The bulk of cases have been among homeless foreign sailors. Improvement in pay and prospects have altered the attitude of the men in the royal navy toward marriage, and most of them are married, but in the merchant service the men in many cases are without home ties. A surgeon, Mr. McAdam Eccles, was glad that the public at last was freely discussing a subject which for fifty years he had tried to bring to notice. Doctors were looking to the public to give strong support to an educational campaign.

Nonspecific Epididymitis

At a joint meeting of the Sections of Urology and Surgery of the Royal Society of Medicine Mr. E. G. Slesinger discussed nonspecific epididymitis. During the last fifteen months Mr. Slesinger and his colleagues have seen 34 cases in the fighting services. The average age of the patients was 38.8 years. The symptoms were pain and swelling. In 19 the pain came first, in 8 the swelling and in 7 the pain and swelling came together. in 3 cases the onset was gradual, but in others it was stated to have been sudden. Some of the patients were febrile throughout, but most showed a pronounced pyrexia for the first few days. None of the patients appeared to be generally ill. In all cases there was tenderness and this was acute in 3. The whole epididymis was enlarged in every case, and the vas was demonstrable in 16. The urine showed a little albumin in 12, and coliform organisms were seen in 3.

Treatment consisted in rest in bed with support of the testis, the patient being fitted with a suspensory bandage. Sulfapyridine and sulfathiazole were tried, but neither made the slightest difference to the condition. Three patients were operated on. The results in the other 31 could be grouped as (1) resolution in from three to six weeks, (2) resolution requiring some months. In the second group some residual thickening was left in the epididymis, but the majority could not be followed up.

Mr. Slesinger considered that this series represented something new in incidence. In the absence of evidence of breakdown and obvious tuberculosis elsewhere the epididymitis must be treated conservatively in the first instance. Operation was not essential in any of the 3 cases in which it was performed. The lumen of the vas seemed to be the route of the infection. It was not clear whether the urine alone could produce an epididymitis or whether infection of the urine was a necessary concomitant. If all the 34 cases were due to infection with pathogenic microbes, it was difficult to believe that none would have suppurated. If the passage of uninfected urine down the vas was accepted as the determining factor there was nothing to explain why it should occur with such relative frequency in the men in the fighting services as compared with the normal population in peacetime.

Czech Medical Degrees Conferred at Oxford University

A graduation ceremony without precedent in the history of Oxford University has taken place. In the presence of the president of the Czechoslovak republic the vice chancellor of the university at the request of the Czechoslovak government conferred degrees on Czechoslovak students who had completed their medical education in this country. As is the custom, the public orator's speeches of presentation were made in what was once the international language of Europe. He referred to the ceremony as spectaculum tam novum tamque magnum (a spectacle as novel as it was great) and to the spirit of the Czech people as indomita haec gentis oppressae in rebus adversis constantia, gravitas, perseverentia (indomitable constancy, dignity and perseverance of this oppressed race in the face of adversity).

The Medical Profession Demands the Pasteurization of All Milk

Pasteurization of milk is performed on a large scale but is not universal. A deputation of leading members of the medical profession asking that milk might be made safe by pasteurization or other heat treatment was received by the minister of food. Professor Picken, who represented the British Medical Association, said that the profession was satisfied that pasteurization was the only practical safeguard and that it had no serious disadvantages. Professor Garrod stated that bovine tuberculosis was a widespread menace and from 5 to 10 per cent of churn samples of raw milk were infected. Milk borne tuberculosis was estimated to cause two thousand deaths a year. The minister said that he would report what had been said to the government.

Economy in Bread: Increased Consumption of Potatoes

In normal times Britain imports about two thirds of its food. The need to devote shipping as much as possible to war purposes has altered this procedure. Now we are producing as much food as we can and the growing of cereals and potatoes has enormously increased. The one important food which has not been rationed so far is bread. A great increase in the

consumption of potatoes has reduced the need for bread, but the Ministry of Food is now considering further steps. A complete record of bread production and consumption, which would be an essential preliminary to rationing, is being made. The fact that people's needs vary much is an obstacle. Lord Woolton, the food controller, wants to see more potatoes eaten instead of bread. The army is to do this. New instructions permit a substitution in the daily ration on the basis of 3 ounces of potatoes for 1 ounce of bread and 4 ounces of flour for 1 ounce. The present daily allowance for soldiers at home is 10 ounces of bread with 2 ounces of flour.

BRAZIL

(From Our Regular Correspondent)

May 11, 1943.

Epidemiology of Cancer

No comprehensive work has ever been published about the epidemiology of cancer in Brazil. The problem has been particularly considered in relation to Rio de Janeiro, the largest city, where some aspects of the incidence of cancer have been analyzed by Luiz Briggs, by J. Barros Barreto and by J. P. Fontenelle. A new contribution, rather more complete, has just been published by Dr. Joaquim E. Alencar. According to the latest available statistical returns, referring to the largest cities in the year 1941, cancer as a cause of death ranks in the sixth place in São Paulo and Belo Horizonte, in the seventh in Rio de Janeiro, Curitiba and Porto Alegre, in the eighth in Cuiaba, in the ninth in Belem, Salvador, Niteroi and Campos, and in the tenth in Recife, Vitoria, Aracaju, Florianopolis, Maceió, Fortaleza and Santos. Thus cancer is less important in the northern, tropical, cities than in the southern ones with a cooler climate.

Dr. Alencar points out that, in the southern cities, where the amount of people of European descent is larger, the principal cities present death rates from cancer in positive correlation with the percentage of European stock in the population. For the period 1932-1941 the average crude death rate per hundred thousand was as follows: Niteroi 47.9, Rio de Janeiro 55.2, Curitiba 62.7, São Paulo 74.1 and Porto Alegre 88.0. It is necessary to point out also that these cities have a cooler and cooler climate as one goes south, from Niteroi to Porto Alegre. The crude death rate from cancer is increasing in Rio de Janeiro, as Dr. Alencar shows, by the following rates: 1902-1911, 33.8 per hundred thousand; 1912-1921, 41.7; 1922-1931, 45.9, and 1932-1941, 55.2. For the last five years, 1938 to 1942, the progression has been 55.0, 59.0, 65.3, 66.4 and 67.3.

One of the most interesting parts of the study is that concerning the distribution of the deaths according to the localization of cancer. From the beginning, Dr. Alencar points out the defective classification of the localizations of cancer used in the International List of Causes of Death, in the previous editions as well as in the Fifth Decennial Revision made in October 1938 in Paris, and now in use in many countries, including the United States and Brazil. Part II of this list, concerning "Cancer and Other Tumors," is divided into eleven titles (numbers 45 to 55) related to malignant tumors, the first ten with cancer of the different organs of the digestive and the respiratory apparatuses of the skin, of the nervous system and of the genitourinary organs, and the last one (number 55) to include cancer of other organs (adrenal gland, bones, thyroid gland, and nasal cavity and accessory sinuses) and also of "unspecified organs." As the number of deaths remains undetermined for the various unspecified organs classified under title 55, the inclusion of these deaths beside those of the other titles would cause a complete disturbance of the true percentage distribution. One solution for this difficulty is to separate the deaths classified under title 55 from those of the other titles for which the number of deaths is correctly related to a specified localization. Thus, out of the total of 9,264 deaths, only 8,307 (3,735 of males and 4,572 of females) may be studied according to the localization, as there are 957 deaths classified as "cancer of other organs and unspecified organs." Out of these 8,307 deaths (of both sexes put together) from cancer the localization of which is well determined 626, or 7.5 per cent, are of the buccal cavity and pharynx, 1,861, or 22.4 per cent, are of the stomach and duodenum, 2,144, or 25.8 per cent, are of other parts of the digestive apparatus, 582, or 7.0 per cent, are of the respiratory apparatus, 596, or 7.2 per cent, are of the genitourinary organs except the uterus, 1,692, or 20.4 per cent, are of the uterus, 640, or 7.7 per cent, are of the breast, and 166, or 2.0 per cent, are of the skin. The distribution is different if we consider either sex separately. The deaths from cancer of the buccal cavity and pharynx represent 12.4 per cent in males and only 3.6 per cent in females; for the stomach and duodenum the figures are respectively 33⅓ and 13.5 per cent; for the other parts of the digestive apparatus, 29.1 and 23.1; for the respiratory apparatus, 13.0 and 2.1; for the genitourinary organs except the uterus, 9.9 and 4.9; for the uterus, 37.0; for the breast, 0.1 and 14.0, and for the skin, 2.2 and 1.8. To go further on the question of the distribution of the localization of cancer, Dr. Alencar transcribes the data for the 1,616 cases attended during the year 1941 at the Center of Cancerology of Rio de Janeiro under the direction of Dr. Mario Kroeff: buccal cavity and pharynx 282 cases, or 17.4 per cent; other parts of the digestive apparatus 54 cases, or 3.3 per cent; respiratory apparatus 82 cases, or 5.1 per cent; genitourinary organs except the uterus 86 cases, or 5.3 per cent; uterus 368 cases, or 22.8 per cent; breast 224 cases, or 13.9 per cent; skin 192 cases, or 11.9 per cent, and other localizations 328 cases, or 20.3 per cent.

Types of Meningococci in São Paulo

Working with sixty strains of meningococci isolated from the cerebrospinal fluid and identified by biochemical tests, Dr. José Carlos Rivas found the following types of agglutination tests carried on in a water bath at 37 C. during two hours; type I, fifteen strains (25 per cent); type II, thirty-eight strains (63 per cent); type III, ten strains (16⅔ per cent); type IV, seven strains (11.6 per cent).

Accordingly in the immunizations for the preparation of the polyvalent therapeutic serum, emulsions of living and recently isolated meningococci in which the strains of type II predominate and of other types in the proportions in which they are found are employed as antigen by the Butantan Institute at São Paulo.

Marriages

JOHN YOUNG TEMPLETON III, Mooresville, N. C., to Miss Dorothy Fraley at Richmond, Va., April 30.

DANIEL LAURENCE MAGUIRE JR., Charleston, S. C., to Miss Martha Dora Oliver of Oswego recently.

LOUIS EMMITT BROWN JR. to Mrs. Mary Alice Parramore Douthit, both of Abilene, Texas, April 2.

FRIEDRICH EIGENBERGER to Miss Cordelia Schrader, both of Sheboygan, Wis., at Kohler, March 20.

ROBERT HOLT GREEN, Charleston, S. C., to Miss Audrey G. Johnston at New York recently.

WENDELL DAVIS, Rochester, N. Y., to Miss Marian Donaldson at Spring Creek, Pa., recently.

JOHN DAVID POWELL, Stuart, Va., to Miss Mable Kathryn Minter of Martinsville recently.

CHARLES HIGHSMITH to Miss Virginia Brannin Adams, both of Fayetteville, N. C., May 8.

WILLIAM COX TUCKER, Birmingham, Ala., to Miss Frances Hay at Fayette, April 11.

RAYMOND SHORT CAMP, Fairburn, Ga., to Miss Ruth Allgood of Marietta, May 7.

Deaths

Philip Heinrich Kreuscher ✠ Chicago; Northwestern University Medical School, Chicago, 1909; since 1932 assistant professor of surgery and formerly instructor in orthopedic surgery and clinical assistant in surgery at his alma mater; clinical professor of orthopedic surgery at Loyola University School of Medicine from 1919 to 1932; member of the Clinical Orthopaedic Society, Chicago Surgical Society, Chicago Pathological Society, Institute of Traumatic Surgery, American Association for the Surgery of Trauma and the Chicago Orthopedic Club; president of the Illinois State Medical Society in 1933 and past president of the Jackson Park Branch of the Chicago Medical Society; in 1934 president of the Northwest Regional Conference; fellow, vice president 1930-1931 and formerly a governor of the American College of Surgeons; medical director of the Industrial Commission of Illinois from 1932 to 1936; retired in February 1943 as chief surgeon of the Chicago District, Carnegie-Illinois Steel Corporation, a position he had held since 1937; in the latter year had been named by the governor as a member to a newly created advisory board of the division for handicapped children, state department of public welfare, and in 1942 was appointed chairman of the first special advisory committee to the division of industrial hygiene of the Illinois Department of Public Health; served as attending orthopedic surgeon to the Mercy, Misericordia and Cook County hospitals; attending senior surgeon to the Passavant Memorial Hospital and the Wesley Memorial Hospital, where he died, June 1, of acute cardiac failure, aged 59.

Guy Leartus Connor ✠ Detroit; Johns Hopkins University School of Medicine, Baltimore, 1901; formerly assistant clinical professor of neurology, psychiatry and preventive medicine at the Detroit College of Medicine; member of the House of Delegates of the American Medical Association in 1917, 1918 and 1920; formerly a member of the Federation of State Medical Boards and in 1928 president; a member of the Michigan State Board of Registration in Medicine from 1917 to 1929 and secretary from 1924 to 1929; president of the Michigan State Medical Society, 1923-1924, and vice president, 1911-1912; president of the Detroit Academy of Medicine in 1917; fellow of the American College of Physicians; for many years medical director for the board of education of Detroit; served on the staffs of the Children's Hospital of Michigan, St. Mary's Hospital and the Harper Hospital; assistant secretary and managing editor of the *Journal of the Michigan State Medical Society* from 1903 to 1905 and associate editor from 1919 to 1923; aged 68; died, April 19, in Fort Lauderdale, Fla., of cerebral hemorrhage.

James Pemberton Hutchinson ✠ Media, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1893; member of the American Surgical Association and the Society of Clinical Surgery; at one time adjunct professor of surgery at his alma mater; served as a major in the medical corps of the U. S. Army and as chief of the American Hospital at Neuilly, France, during World War I; received the Cross of the Legion of Honor of France from the French government and the Distinguished Service Cross; formerly associate director and director of the Pennsylvania Mutual Life Insurance Company, Philadelphia; at one time on the staffs of the Pennsylvania and Methodist hospitals and St. Timothy's Hospital, now known as the Memorial Hospital, Roxborough, Philadelphia; formerly on the staff and from 1925 to 1941 a member of the board of managers of the Hospital of the Protestant Episcopal Church, Philadelphia; for several years president of the board of directors of the School for the Blind, Overbrook; aged 75; died, April 8, of heart disease.

Frederick Cowles Herrick ✠ Cleveland; Western Reserve University Medical Department, Cleveland, 1897; demonstrator of surgery at his alma mater from 1901 to 1907, instructor in surgery from 1907 to 1910, lecturer on surgery, 1910-1911, associate in surgery from 1911 to 1921, assistant clinical professor from 1921 to 1933 and later associate clinical professor of surgery; specialist certified by the American Board of Urology, Inc., and the American Board of Surgery; fellow of the American College of Surgeons; member and past president of the Ohio section of the American Urological Association; chief surgeon at Camp Grant, Ill., and Base Hospital number 83 of the American Expeditionary Forces during World War I; colonel in the medical reserve corps of the U. S. Army not on active duty; formerly chief of the surgical staff, St. Vincent Charity and Cleveland City hospitals; consultant in urology at St. John's Hospital; member of the city chamber of commerce; aged 70; died, April 5, of hypertensive arteriosclerotic heart disease.

George Burt Lake ✠ Highland Park, Ill.; Rush Medical College, Chicago, 1902; Army Medical School, Washington, D. C., 1911; assistant surgeon for the Mexican Central Railway from 1902 to 1904; practiced at Wolcottville, Ind., from 1904 to 1910 and was town health officer, 1907-1908; special lecturer in hygiene and sanitation at Purdue University, La Fayette, Ind., from 1908 to 1910; an officer in the medical corps of the U. S. Army from 1910 to 1924; resigned as a major; served during World War I; colonel in the medical reserve corps of the U. S. Army not on active duty; member of the Association of Military Surgeons of the United States, American Physicians' Art Association, Illinois Academy of Science and the American Association of the History of Medicine; attending internist to the American Hospital, Chicago, from 1927 to 1934; editor and publisher of *Clinical Medicine and Surgery;* author of poetry; aged 62; died, March 2, in the Lake Forest (Ill.) Hospital of paralytic ileus and herniorrhaphy.

William Edgar Caldwell ✠ New York; University and Bellevue Hospital Medical College, New York, 1904; professor of clinical obstetrics and gynecology at the Columbia University College of Physicians and Surgeons, New York; formerly instructor of obstetrics at the New York University Medical College; specialist certified by the American Board of Obstetrics and Gynecology, Inc.; member of the American Gynecological Society; fellow of the American College of Surgeons; served as a captain in the medical corps of the U. S. Army during World War I; for many years on the staff of the Bellevue Hospital; associate director of the Sloane Hospital for Women; consultant to the Presbyterian Hospital, New York, and the Monmouth Memorial Hospital, Long Branch, N. J.; in 1934 received a gold medal from the American Roentgen Ray Society and in 1941 the honorary degree of doctor of public health from New York University; aged 63; died, April 1, of congestive heart disease.

William Allan ✠ Winston-Salem, N. C.; College of Physicians and Surgeons, Baltimore, 1906; professor of medical genetics at the Bowman Gray School of Medicine; served as visiting professor of medicine at the Medical College of Virginia, Richmond, and professor of parasitology at the North Carolina Medical College, Charlotte; past president of the Medical Society of the State of North Carolina and the Mecklenburg County Medical Society; member of the Association of American Physicians; specialist certified by the American Board of Internal Medicine; served during World War I; lieutenant colonel in the medical reserve corps, U. S. Army, not on active duty; formerly director of the family record department at the Memorial Hospital in Charlotte; aged 61; died, April 24, in the North Carolina Baptist Hospital of lobar pneumonia.

Albert P. Brubaker, Philadelphia; Jefferson Medical College of Philadelphia, 1874; member of the Medical Society of the State of Pennsylvania; emeritus professor of physiology and medical jurisprudence at his alma mater; professor of physiology at the Pennsylvania College of Dental Surgery from 1885 to 1907; formerly lecturer of physiology and hygiene at the Drexel Institute of Art, Science and Industry; received the honorary master's degree from the Franklin and Marshall College, Lancaster, Pa., in 1888; a member of the College of Physicians of Philadelphia, Academy of Natural Sciences, American Philosophical Society and the American Physiological Society; author of a textbook of "Human Physiology" published in many editions; aged 90; died, April 29, in the Jefferson Hospital.

Arthur Henry Geiger ✠ Chicago; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1900; chairman of the Illinois Professional Committee for Medicine, Department of Registration and Education; specialist certified by the American Board of Otolaryngology; member of the American Academy of Ophthalmology and Otolaryngology and the Association of Military Surgeons of the United States; lieutenant colonel in the medical reserve corps of the U. S. Army not on active duty; member of the attending staff of the Henrotin Hospital; president of the staff and attending ear, nose and throat surgeon to the Illinois Masonic Hospital, where he died, May 12, of bronchogenic carcinoma of the right lung, aged 65.

Cornelius Gysbert Dyke ✠ New York; State University of Iowa College of Medicine, Iowa City, 1926; associate professor of radiology at Columbia University College of Physicians and Surgeons; specialist certified by the American Board of Radiology, Inc.; member and in 1938 vice president of the American Roentgen Ray Society; member of the American College of Radiology and the Harvey Cushing Society; director of radiology at the Neurological Institute of New York; joint author with Dr. Leo M. Davidoff of "Normal Encephalogram,"

1937, and "Roentgen Treatment of Diseases of the Nervous System," 1942; attending radiologist to the Presbyterian Hospital, where he died, April 23, of acute leukemia, aged 42.

Kerwin Weidman Kinard ✠ Swarthmore, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1908; past president of the Jackson County (Mo.) Medical Society and the American Association for the Study of Goiter; fellow of the American College of Surgeons; served as an officer in the medical corps of the U. S. Army and during World War I; colonel in the medical reserve corps of the U. S. Army not on active duty; formerly chief of the division of clinics, bureau of tuberculosis control, state department of health; served on the staff of the Chester (Pa.) Hospital; plant physician for the American Viscose Corporation, Marcus Hook; aged 57, died, April 1, in Philadelphia of coronary occlusion.

John James Corbett ✠ Detroit; Syracuse University College of Medicine, 1917; associate professor of clinical proctology at the Wayne University College of Medicine; specialist certified by the American Board of Surgery and a member of the founders group in proctology; member and in 1940 elected vice president of the American Proctologic Society; fellow of the American College of Surgeons; served in the medical corps of the U. S. Army during World War I; attending surgeon in proctology at the Harper Hospital, Herman Kiefer Hospital and the Children's Hospital; an associate surgeon at the Receiving Hospital; aged 49; died, April 10, of carcinoma of the stomach.

Herbert I. Harris ✠ Lieutenant Colonel, U. S. Army, retired, Geneva, Ill.; University of Buffalo School of Medicine, 1898; a contract surgeon in the U. S. Army from 1898 to 1908; captain in the medical section of the Officers' Reserve Corps in 1917 and later a major; lieutenant colonel in the medical corps of the National Army in 1918; honorably discharged, Oct. 31, 1919, and retired on the same date for disability in line of duty; under a special act of Congress in June 1930 was retired with the rank of lieutenant colonel in the medical corps of the U. S. Army; aged 68; died, April 24, in the Community Hospital of diabetes mellitus and septicemia due to carbuncle of the neck.

Frederick Allport Dale ✠ Colonel, U. S. Army, retired, Baltimore; University of Pennsylvania Department of Medicine, Philadelphia, 1900; commissioned a first lieutenant in the medical corps of the U. S. Army in 1901 and rose through the various ranks to that of colonel; his military career took him to China, Japan, the Philippine Islands, Siberia and to France during World War I; retired, Aug. 31, 1936, at which time he was surgeon of the Third Corps Area, now the Third Service Command; fellow of the American College of Surgeons; aged 70; died, April 16, in the U. S. Marine Hospital, Baltimore, of cerebral hemorrhage.

David Nathaniel Shippee, Wanaque, N. J.; Baltimore Medical College, 1894; on the courtesy staffs of St. Joseph's and Paterson General hospitals, Paterson; served as health officer, school physician and a member of the board of education of Pompton township; at one time president of the First National Bank of Pompton Lakes; for many years surgeon for the Erie Railroad; an examining physician for the Passaic County Draft Board number 1 during World War I; for many years first assistant chief of the fire department of Wanaque Valley; aged 69; died, April 6, of cerebral hemorrhage and diabetes mellitus.

Herbert Lynn Halbert ✠ Staten Island, N. Y.; Columbia University College of Physicians and Surgeons, New York, 1918; fellow of the American College of Surgeons; president of the Richmond County Medical Society; attending surgeon and roentgenologist, Staten Island Hospital; attending surgeon, Richmond Borough Hospital and Seaside Hospital; consulting roentgenologist, Richmond Memorial Hospital; served in the army transport service during World War I; aged 52; died, April 6, in the New York Post-Graduate Medical School and Hospital of intestinal obstruction.

May Salona Holmes ✠ Orleans, Mass.; Woman's Medical College of the New York Infirmary for Women and Children, New York, 1895; an Affiliate Fellow of the American Medical Association; superintendent of the Belmont Hospital, Worcester, from its inception in 1896 until her retirement in 1941; in 1936 a three story isolation wing of the hospital was named the May Salona Holmes Building in her honor; the hospital employees honored her by placing a tablet in the building's library; aged 71; died, April 4, in the Worcester City Hospital of carcinoma of the breast with metastases.

Thomas W. Adair, Archie, Mo.; Kansas City Medical College, 1885; member of the Missouri State Medical Association; twice president of the Cass County Medical Society; formerly chief examining physician for the Cass County Selective Service System; served as a member of the board of education; aged 86; died, March 5, of pneumonia.

Jacob E. Barrows, Parkersburg, W. Va.; Metropolitan Medical College, Chicago, 1900; member of the West Virginia State Medical Association; aged 73; died, February 18, of angina pectoris.

Samuel McCune Black, Carnegie, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1897; aged 73; died, February 13, of cerebral hemorrhage, hypertension, arteriosclerosis and carcinoma.

John A. Colgan ✠ Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1901; formerly on the staffs of the Wills and Howard hospitals; aged 66; died, February 16, of acute cardiac dilatation, chronic myocarditis and chronic endocarditis.

John Parke Duggan, Pittsburgh; University of Louisville (Ky.) Medical Department, 1911; served during World War I; aged 55; died, February 5, in the Veterans Administration Facility of cerebral thrombosis and hypertensive cardiovascular disease.

Alfred Elliott ✠ Middleboro, Mass.; College of Physicians and Surgeons, Baltimore, 1900; aged 71; served on the staff of St. Luke's Hospital, where he died, March 1, of heart disease.

Otoniel Trejos Flores, Dodge Center, Minn.; Loyola University School of Medicine, Chicago, 1919; mayor of Dodge Center from 1930 to 1932; Dodge County physician from 1926 to 1933; on the staff of the Owatonna (Minn.) City Hospital; aged 56; died, March 5, in St. Mary's Hospital, Rochester, of diabetes mellitus and chronic nephritis.

William H. Gibson, Des Moines, Iowa; Bennett College of Eclectic Medicine and Surgery, Chicago, 1903; aged 74; died, March 4, of cerebral thrombosis.

James A. Henrichsen, Larsen, Wis.; National Homeopathic Medical College, Chicago, 1894; member of the State Medical Society of Wisconsin; aged 75; died, March 4, of carcinoma.

Willis Wharton Jones, Washington, D. C.; Howard University College of Medicine, Washington, 1904; aged 64; died, March 18, of hypertension and arteriosclerosis.

William A. Kinnan, Washington, D. C.; Columbian University Medical Department, Washington, 1895; aged 79; died, March 31, of carcinoma of the prostate.

Francis Gustave Lagerstrom, Minneapolis; Kansas Medical College, Topeka, 1899; aged 67; died, March 13, of carcinoma of the tongue with metastasis and bronchopneumonia.

N. Sanford Messenger, Elmira, N. Y.; University of Buffalo School of Medicine, 1881; died, March 4, of coronary occlusion and arteriosclerosis.

Avedis Nakashian, Forest Hills, N. Y.; American University of Beirut School of Medicine, Syria, 1894; aged 75; died, March 29, of cerebral hemorrhage and heart disease.

Lurton F. Polk, Lincoln, Neb.; Physio-Medical College of Indiana, Indianapolis, 1880; aged 84; died, March 22.

George Rock, Auburn, Ind.; Toledo (Ohio) Medical College, 1891; aged 89; died, March 31, in the Lutheran Hospital, Fort Wayne, of carcinoma of the stomach.

Emery Martin P. Seeburt, San Francisco; College of Physicians and Surgeons of San Francisco, 1918; aged 54; died, March 27, of coronary occlusion.

Frank Aloysius Tyler ✠ Seattle; University of Minnesota College of Medicine and Surgery, Minneapolis, 1906; formerly a druggist; aged 60; died, March 3, in the Virginia Mason Hospital, Seattle, of cerebral thrombosis and arteriosclerosis.

Charles Grover Walters, Pittsburgh; University of Pittsburgh School of Medicine, 1910; aged 55; died, March 28, in the Mercy Hospital.

DIED WHILE IN MILITARY SERVICE

Morris S. Birnbaum, New York; Medizinische Fakultät der Universität, Wien, Austria, 1937; member of the Medical Society of the State of New York; first lieutenant in the medical reserve corps of the U. S. Army; aged 30; died, Aug. 18, 1942, at the Island of Oahu, Territory of Hawaii, of brain tumor.

Sam Futrovsky, Washington, D. C.; George Washington University School of Medicine, Washington, 1940; served as a resident on the staff of the National Homeopathic Hospital; first lieutenant in the medical corps of the Army of the United States, a flight surgeon attached to Elgin Field, Fla., where he died, Oct. 6, 1942, of injuries received in an airplane accident, aged 29.

Correspondence

THE MEDICAL PROFESSION AND PLANNED HEALTH

To the Editor:—Is the health of the people the concern of the people? The answer to this question is a challenge to the American medical profession. The war is accelerating the trend toward greater and more comprehensive social planning by governments throughout the world, and in every instance special consideration is being given to problems of national health. Our own government has stated clearly that the health of the people is the concern of the government. The Beveridge plan in England, the social security laws in New Zealand, the proposed Australian plans and the social security legislation already submitted to the Congress may be prophetic evidence that a program of planned health in our own country is ultimately inevitable. The medical profession, therefore, may soon be faced with a crisis in its affairs.

In general our profession has always regarded the health of the people as its own concern, and any attempt at governmental interference has been looked on with suspicion. This attitude is not peculiar to the medical profession but is common to many groups possessing specialized knowledge. Thus the banker may assume that he alone should regulate matters of finance, and the lawyer the field of law. As long as the course of human events runs smoothly, these assumptions are not questioned by the people. However, in periods of great social unrest, when adverse circumstances cast doubts on the validity of such assumptions, a significant change may occur. The people, having lost confidence in leaders of specialized groups, then undertake tasks requiring technical knowledge which they do not possess. In the absence of informed leadership, theories and plans are developed which must be discarded later because of their unsoundness and unsuitability. The mutual grievances of the moment then preclude the integration of the special knowledge of the one group with the needs of the other. At such times only by the closest cooperation and mutually unselfish devotion to a common objective can public confidence be maintained and progress assured.

It would be useless to deny that we are now going through a period of great social change and that the concept of a system of planned health, by the state, for all the people is rapidly emerging as an important part of every social security program. It may be interesting to point out that its origin is outside the medical profession. Organized medicine, however, cannot ignore for long this widespread popular demand, which affects so vitally its traditional tenets.

The attitude which the medical profession takes toward governmental planned health can be the one decisive factor which determines whether the plan shall be conducted on a high intellectual and scientific plane or on the level of purely economic and political expediency. The history of this movement in other countries has been too frequently associated with antagonism and bitterness, resulting in compromises which have proved to be unsatisfactory both to the state and to the medical profession. This predicament could be avoided if the state and the profession agreed to recognize their respective limitations. The larger aspects of a social security program and the scope of planned health should concern primarily the state, and here the role of the physician is that of a citizen rather than a doctor. The medical, or professional, phase of the program is the concern chiefly of the medical profession, since it alone possesses the technical knowledge on which far reaching decisions and plans for better health must be based.

It is increasingly obvious that it would be futile for the medical profession to favor the status quo, since in a society changing as rapidly as ours the status quo is merely an illusion. We must go either forward or backward, and the status quo is relative regression, since society is surging onward. Furthermore, no group or profession, however well intentioned, can withstand a rampant public opinion once the people have become convinced that they have a just cause.

What, then, is the task which confronts the medical profession in this critical period of its long and honorable history?

First of all the profession should agree to join with the state in the common enterprise of formulating a plan which would provide the highest possible degree of health for all the people. At the outset the state and the profession should have a clear understanding of the common purpose and the common goal. The best minds and talent of the profession and the state must be enlisted to survey, jointly and objectively, the vast existing mechanisms of medical and all allied services. This study should embrace the scientific, the educational, the administrative, the economic and the sociological aspects of the entire field. In addition, a study should be undertaken along similar lines of planned health programs soon to be introduced or already functioning in other countries.

It would be a work of monumental proportions, but from the knowledge thus gained a foundation could be laid on which to build a system of planned health which approached the ideal and for which the state and the medical profession assumed joint responsibility. Since the public, in the final analysis, is both judge and jury, the result of this cooperative study and the plan arising from it should receive the widest possible publicity to the end that an informed people might render a fair and competent judgment.

Here is the task and the opportunity for service worthy of a great profession. May the effort be not too little or too late!

ASHLEY W. OUGHTERSON, M.D., New Haven, Conn.
EDWARD J. OTTENHEIMER, M.D., Windham, Conn.

"HUEPER'S OCCUPATIONAL TUMORS"

To the Editor:—In the Book Notices in THE JOURNAL, January 23, was a review of Hueper's "Occupational Tumors and Allied Diseases." A paragraph states what the character of the subject matter is. And then follow four paragraphs of adverse criticism of some small phases of these important industrial problems.

I believe that this is an unfair review of a stimulating and exceedingly interesting presentation of the problem of occupational cancer. The reviewer may not agree with the author's theories concerning the origin of these malignant growths but he must have had his curiosity aroused regarding the origin of so many different forms of cancer which can be directly related to industrial chemical hazards. The historical presentation of chimney sweeps' cancer from the time of Percival Pott down to the present forms a fascinating chapter which is well worth the attention of any student of cancer. The author has collected an amazing number of references to every form of cancer which may have an occupational relationship. In some portions of this review he speaks authoritatively, as in the dye cancers of the genitourinary apparatus. The chapters on the radioactive chemicals are well done and beyond controversy. It is unnecessary to take up the subject matter chapter by chapter. There is a wealth of material in this book and much of it is new to the average medical reader. The attempt to include some of the more doubtful types of malignant tumors under the hazards of industry may be put down to enthusiasm. Inaccuracies, as noted in THE JOURNAL review, are bound to occur in such an extensive subject. These will no doubt be corrected in future editions.

To my mind this book is a "must" volume to every physician connected with industry. The clinical workers in the tumor clinics of the country will find much to arouse their interest from reading this book. The research workers also can use it as a reference book to great advantage.

JOHN J. MORTON, M.D., Rochester, N. Y.
Professor of Surgery, University of Rochester
School of Medicine and Dentistry.

TREATMENT OF DELAYED MENSTRUATION

To the Editor:—An article recently published displays a deliberate obscurity in reference to previous work and thus gives a false impression of originality to the casual reader. I refer to A Combined Method for the Treatment of Delayed Menstruation and a Test for Early Pregnancy, by Haig Carapetyan (THE JOURNAL, May 8, p. 81).

The author treats the subject as if it were a new idea arrived at by acute deduction from vague hints in the previous literature. Actually the original clinical article on this subject was published by myself and co-workers in THE JOURNAL two years ago. In this article we related the subject matter to our previous work in animals and reported our results in 48 clinical cases. Since that time there have been at least four confirming clinical reports in the American literature, namely:

Settel, Edward: Simultaneous Use of Prostigmine Methylsulfate as Treatment for Delayed Menstruation and as a Diagnostic Test for Pregnancy, *M. Rec.* **155:** 331 (Jan.) 1942.

Grossman, L. L.: Treatment of Delayed Menstruation with Prostigmine, *West. J. Surg.* **50:** 103 (Feb.) 1942.

Parrella, Dominick: Prostigmine in Delayed Menstruation, *Northwest. Med.* **41:** 384 (Nov.) 1942.

Sneider, M. J.: The Prostigmine Pregnancy Test and Treatment for Delayed Menstruation, *Illinois M. J.* **83:** 107 (Feb.) 1943.

There have also been some confirming articles in the South American literature. At least 200 clinical cases in all are now on record. To these Dr. Carapetyan has merely added 57 additional cases which are only confirmatory in nature and which do not add any original observations or ideas.

True, Dr. Carapetyan mentions my previous articles in his paper. But this is only with reference to certain control animal experiments and is done in such a way as to make his own clinical data appear to be completely original. He makes no mention whatever of the confirming literature indicated. Nowhere, either in the body of his paper or in his conclusions, does he say or even suggest that his data are confirmatory in nature.

SAMUEL SOSKIN, M.D., Chicago.
Director, Metabolic and Endocrine Research,
Michael Reese Hospital.

"PENTOSURIA AND DIABETES MELLITUS"

To the Editor:—It should have been as apparent to us as it was to several friendly critics that the evidence presented in our report (THE JOURNAL, Sept. 5, 1942, p. 25) did not warrant the statement in the summary that we were dealing with a case of chronic essential pentosuria. Using the same tests as were used at the time of the original study (as well as additional tests), seven collections of the same patient's urine at intervals between September 1942 and January 1943 were found to contain no pentose. This further evidence, in our opinion, makes it clear that the reported pentosuria was transitory, certainly not "chronic," and doubtfully worthy of the designation "essential."

ROBERT E. MOSS, M.D., Denver.
BURNHAM S. WALKER, M.D., Boston.
Massachusetts Memorial Hospitals.

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

NATIONAL BOARD OF MEDICAL EXAMINERS EXAMINING BOARDS IN SPECIALTIES

Examinations of the National Board of Medical Examiners and Examining Boards in Specialties were published in THE JOURNAL, June 5, page 397.

BOARDS OF MEDICAL EXAMINERS

ALABAMA: Montgomery, June 15-16. Sec., Dr. B. F. Austin, 519 Dexter Ave., Montgomery.

ARIZONA: * Phoenix, July 6-7. Sec., Dr. J. H. Patterson, 826 Security Bldg., Phoenix.

CALIFORNIA: *Written.* San Francisco, June 28-July 1. *Oral.* Los Angeles, August 9. Sec., Dr. Frederick N. Scatena, 1020 N Street, Sacramento.

COLORADO: * Denver, July 7-9. Final date for filing application is June 20. Sec., Dr. J. B. Davis, 831 Republic Bldg., Denver.

CONNECTICUT: * *Written.* Hartford, July 13-14. *Reciprocity.* Hartford, July 27. Sec. to the Board, Dr. Creighton Barker, 258 Church St., New Haven.

DELAWARE: Dover, July 13-15. *Reciprocity.* Dover, July 20. Sec., Medical Council of Delaware, Dr. Joseph S. McDaniel, 229 S. State St., Dover.

FLORIDA: * Jacksonville, June 21-22. Sec., Dr. William M. Rowlett, Box 786, Tampa.

HAWAII: Honolulu, July 12-15. Sec., Dr. J. A. Morgan, 55 Young Building, Honolulu.

IDAHO: Boise, July 13. Dir., Bureau of Occupational Licenses, Mrs. Lela D. Painter, 355 State Capitol Bldg., Boise.

ILLINOIS: Chicago, June 22-24. Superintendent of Registration, Department of Registration and Education, Mr. Philip M. Harman, Springfield.

INDIANA, Indianapolis, Sept. 14-16. Sec., Board of Medical Registration & Examination, Dr. W. C. Moore, 301 State House, Indianapolis.

IOWA: * Iowa City, Dec. 27-29. Dir., Division of Licensure and Registration, Mr. H. W. Grefe, Capitol Bldg., Des Moines.

KENTUCKY: Louisville, Nov. 15-17. Sec., Dr. A. T. McCormack, 620 S. Third St., Louisville.

MAINE: Augusta, July 6-7. Sec., Dr. Adam P. Leighton, 192 State St., Portland.

MARYLAND: *Homeopathic.* Baltimore, June 15-16. Sec., Dr. J. A. Evans, 612 W. 40th St., Baltimore.

MASSACHUSETTS: Boston, July 13-16. Sec., Board of Registration in Medicine, Dr. H. Q. Gallupe, 413-F State House, Boston.

MONTANA: Helena, Oct. 5-6. Sec., Dr. O. G. Klein, First Nat'l Bank Bldg., Helena.

NEW HAMPSHIRE: Concord, Sept. 9-10. Sec., Board of Registration in Medicine, Dr. D. G. Smith, State House, Concord.

NEW JERSEY: Trenton, June 15-16. Sec., Dr. E. S. Hallinger, 28 W. State St., Trenton.

NEW MEXICO: * *Endorsement.* Santa Fe, Oct. 11-12. Sec., Dr. LeGrand Ward, 141 Palace Ave., Santa Fe.

NORTH CAROLINA: Raleigh, June 14-18. Sec., Dr. W. D. James, Hamlet.

NORTH DAKOTA: Grand Forks, July 6-9. Sec., Dr. G. M. Williamson, 4½ S. Third St., Grand Forks.

OHIO: *Endorsement.* Columbus, July 7. *Written.* Columbus, Dec. 4. Sec., Dr. H. M. Platter, 21 W. Broad St., Columbus.

OREGON: * Portland, July 21-24. Sec., Dr. L. S. Besson, 608 Failing Bldg., Portland.

RHODE ISLAND: * Providence, July 1-2. Chief, Division of Examiners, Mr. Thomas B. Casey, 366 State Office Bldg., Providence.

SOUTH CAROLINA: Columbia, June 28-30. Sec., Dr. N. B. Heyward, 1329 Blandena St., Columbia.

SOUTH DAKOTA: * Pierre, July 20. Dir., Medical Licensure, State Board of Health, Dr. Gilbert Cottam, Pierre.

TEXAS: Galveston, Aug. 2-4. Sec., Dr. T. J. Crowe, 918-20 Texas Bank Bldg., Dallas.

WEST VIRGINIA: Charleston, July 6-8. Commissioner, Public Health Council, Dr. C. F. McClintic, State Capitol, Charleston.

WISCONSIN: * Milwaukee, June 29-July 1. Sec., Dr. C. A. Dawson, Tremont Bldg., River Falls.

* Basic Science Certificate required.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

ARIZONA: Tucson, June 15. Sec., Dr. Robert L. Nugent, Science Hall, University of Arizona, Tucson.

DISTRICT OF COLUMBIA: Washington, Oct. 18-19. Sec., Dr. G. C. Ruhland, 6150 E. Municipal Bldg., Washington.

IOWA: Des Moines, July 13. Dir., Division of Licensure & Registration, Mr. H. W. Grefe, Capitol Bldg., Des Moines.

NEW MEXICO: June 14. Sec., Miss Pia Joerger, State Capitol, Santa Fe.

OREGON: Corvallis, July 10. Sec., State Board of Higher Education, Mr. C. D. Byrne, University of Oregon, Eugene.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Occupational Disease Acts: Toxic Encephalitis as a Sequela of Poisoning by Benzol.—The claimant was employed in the finishing room of the defendant furniture manufacturing company irregularly from 1919 to 1935 and practically uninterruptedly from 1935 to Feb. 22, 1940. It was his duty to dip pieces of furniture into a tank of stain, among the ingredients of which was benzol, and then to brush the pieces dipped. His bare hands were inserted into the mixture and sometimes the mixture splashed on his face. He underwent an appendectomy in April 1939. Prior to that time he had suffered with gas pains and headaches, and these symptoms continued with increasing severity after the operation. Feb. 22, 1940 he "had two and one-half hours of dizziness, fell to the floor, had a convulsion." Apparently he has been totally disabled since that date, being subject to dizziness and convulsions. He "is not sure footed." He instituted proceedings in December 1940 under the Michigan occupational disease act to recover compensation for his disability, which he alleged was the result of "toxic encephalitis" from which he was suffering and which he had contracted from his employment. A commission of three physicians appointed by the department of labor and industry of Michigan in January 1941 to examine the claimant found that he was "suffering from toxic encephalitis resulting from (7) poison by wood alcohol, or, (8) poisoning by benzol or nitro-, hydro-, hydroxy-, and amido-derivatives of benzene (dinitrobenzol, anilin, and others) or its sequelae." On the basis of this finding and other evidence the deputy commissioner of labor found that the claimant suffered from an occupational disease, toxic encephalitis, arising out of and in the course of his employment and awarded compensation. So far as is here material, the award was affirmed by the department, which found that the claimant was working with benzol and that he suffered from hoarseness, headaches and gas pains for some time prior to his disablement, that his discomfort and pain lessened when he left work at the end of each day only to return on his resuming work the following morning, that he did not come in contact with wood alcohol in any way but that he did with benzol, which caused toxic encephalitis, and that he did not come in contact with benzol outside of the furniture factory. The department accordingly concluded that his occupational disease resulted from poisoning by benzol. The employer and his insurer appealed to the Supreme Court of Michigan.

Poisoning by benzol or its sequelae, said the Supreme Court, when caused by any process involving the use of or direct contact with benzol, is a compensable occupational disease under the Michigan occupational disease act. The employer and his insurer apparently contended that the claimant's condition, toxic encephalitis, could not be caused by poisoning, that poisoning could cause an irritation but not an inflammation of the brain, such as encephalitis is. This contention was based on the testimony of a medical witness, called by the employer and his insurer, who testified to that effect and who ascribed the claimant's condition to arteriosclerosis. The three physicians, answered the Supreme Court, who signed the medical commission's report evidently believed that toxic encephalitis could be, and in this case had been, caused by poisoning by benzol. The department had the medical commission's report before it. The report stated that the claimant either was or had been suffering from poisoning from wood alcohol or benzol which resulted in toxic encephalitis. The statutory provisions authorizing the department to appoint the commission states that the report of the commission when signed by at least two of its members is final and conclusive as to the condition of the employee with respect to the alleged disease or diseases. In *Smith* v. *Wilson Foundry & Machine Co.*, 296 Mich. 484, 296 N. W. 654, this court held that the report of such a commission is final only as to the date of the examination but that the liability of the employer is to be determined as of the date of the disablement of the employee. In this case, continued the court, the medical commission found that, on the day of the examination the claimant was "suffering from toxic encephalitis resulting from (7) poison by wood alcohol, or, (8) poisoning by benzol or nitro-, hydro-, hydroxy-, and amido-derivatives of benzene (dinitrobenzol, anilin, and others) or its sequelae." It may be argued that the only condition which the medical commission found in existence on the date of the examination was toxic encephalitis, that in effect the medical commission made no express finding one way or another as to whether poisoning by benzol then existed but simply referred to it as causative of the toxic encephalitis and, therefore, by implication, found that it (the poisoning by benzol) had once existed. However this may all be, it is to be emphasized that the legislature has listed as a compensable occupational disease not only poisoning by benzol but also its sequelae. As a medical term, sequela means "a disease or morbid condition left as the result of a disease" (Webster). Thus if toxic encephalitis resulted from poisoning by benzol, it is a compensable occupational disease.

The occupational disease act specifically provides that it shall not apply to cases of occupational disease in which the last exposure to the hazards of the disease occurred prior to the effective date of the act, Oct. 29, 1937. The employer and his insurance carrier argued that since the claimant had worked for some years prior to Oct. 29, 1937 with the stain containing benzol he must have contracted the disease prior to that date and hence was not entitled to compensation. But, said the court, in this case, the last injurious exposure occurred Feb. 22, 1940, after the effective date of the act, and therefore disablement caused by the disease is compensable, and it is immaterial when the disease was contracted.

The defendants further contended that there was no competent testimony that the occupational disease from which it is alleged the claimant is suffering was due to causes and conditions characteristic of and peculiar to his employment or that it was due to the nature of the employment in which he was engaged. The court held, apparently, that no such specific proof was necessary because the occupational disease act specifically made compensable "disabilities arising from . . . poisoning by benzol" and "caused by . . . any process involving the use of or direct contact with benzol." We read this language, said the court, as a legislative declaration that poisoning by benzol is characteristic of, peculiar to and due to the nature of employment wherein there is any process involving the use of or direct contact with benzol.

It was next contended that the department erred in holding that toxic encephalitis is one of the occupational diseases specifically made compensable under the act. The department, however, answered the court, made no such finding. Both the medical commission and the department held that toxic encephalitis was the result of poisoning by benzol, which is specifically scheduled in the occupational disease act. Toxic encephalitis was mentioned by them simply by way of description of the claimant's present disabled condition which is due to poisoning from benzol.

For the reasons stated, the award of compensation in favor of the claimant was affirmed.—*Nicholas v. St. Johns Table Co., 5 N. W. (2d) 442 (Mich., 1942).*

Society Proceedings

COMING MEETINGS

Montana, Medical Association of, Billings, July 7-8. Dr. Thomas F. Walker, 206 Medical Arts Building, Great Falls, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1932 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Heart Journal, St. Louis

25:1-144 (Jan.) 1943

*Treatment of Experimental Renal Hypertension with Partially Purified Renin. G. E. Wakerlin, C. A. Johnson, E. L. Smith, B. Gomberg, J. R. Weir, W. G. Moss and M. L. Goldberg, Chicago. —p. 1.

Normal Human Ventricular Gradient: I. Factors Which Affect Its Direction and Its Relation to the Mean QRS Axis. R. Ashman and E. Byer, notation by R. H. Bayley, New Orleans.—p. 16.

Id.: II. Factors Which Affect Its Manifest Area and Its Relationship to Manifest Area of QRS Complex. R. Ashman and E. Byer, New Orleans.—p. 36.

Benzol-Adrenalin Test as Reliable Method of Estimating Changes in Sensitivity of Dog's Ventricles to Fibrillation: Application of Method to Study of Quinidine Sulfate. R. Wegria and N. D. Nickerson, Cleveland.—p. 58.

Incidence of Rheumatic Stigmas in Hearts Which Are Usually Considered Nonrheumatic. E. M. Hall and Lucille R. Anderson, Los Angeles.—p. 64.

Studies with Ballistocardiograph in Acute Cardiac Infarction and Chronic Angina Pectoris. I. Starr and F. C. Wood, Philadelphia. —p. 81.

Anatomic Cause of Electrocardiographic Changes in Virus Myocarditis of Rabbits. J. M. Pearce, Brooklyn, and H. D. Levine, Boston. —p. 102.

Experimental Renal Hypertension.—Wakerlin and his associates prevented experimental renal hypertension in 6 of 15 dogs by the daily intramuscular injection of partially purified renin for three months before and after the renal arteries were constricted. Two of 4 dogs were protected by hog renin, 1 of 4 by heat inactivated hog renin, 2 of 4 by renin and 1 by rabbit renin and neither of 2 by inactive human renin. Liver extract, prepared like partially purified renin, offered no protection to 3 dogs. In 16 untreated control animals experimental renal hypertension developed after constriction of the renal arteries. Daily intramuscular injection of partially purified hog renin for four months or more strikingly reduced the blood pressure of renal hypertensive dogs. The mechanism of the prophylactic and therapeutic effect may be due to renin or to some other substance or substances in the partially purified renal extracts. Antirenin is almost certainly not involved. If future results substantiate the observations to date, the authors plan to study the effect of such treatment in essential hypertension in man.

American Journal of Diseases of Children, Chicago

65:195-354 (Feb.) 1943

Value of Complex Carbohydrates in Diets of Normal Children. Icie G. Macy, Frances Cope Hummel and Marion L. Shepherd, Detroit. —p. 195.

Galactose Tolerance Test in Endocrine Disorders in Children. R. Wagner, Boston.—p. 207.

Independence of Serum Cholesterol from Exogenous Cholesterol in Infants and in Children. W. Heymann and F. Rack, Cleveland. —p. 235.

Syndrome of Cutaneous Fragility and Hyperelasticity and Articular Hyperlaxity. B. Benjamin and H. Weiner, Montreal, Canada. —p. 247.

Infarction of Liver and Hypoprothrombinemia: Report of Their Association in Newborn Infant with Failure of Vitamin K Therapy. L. Kaplan; M. A. Perlstein, Chicago, and E. R. Hess.—p. 258.

*Encephalitis Complicating Measles: Report of 56 Cases with Follow-Up Studies in 32. A. M. Litvak, I. J. Sands and H. Gibel, Brooklyn. —p. 265.

Premenstrual State in Young Girls. J. D. Pilcher and H. Tuchewicz, Cleveland.—p. 296.

Need for Observations of Growth in Appraising Adequacy of Nutrition in Childhood. H. C. Stuart, Boston.—p. 320.

Encephalitis Complicating Measles.—Litvak and his co-workers point out that 23 cases of measles complicated by symptoms of the central nervous system were found among the 1,213 measles patients hospitalized at the Kingston Avenue Hospital between January and June 1941 and 33 between 1935 and January 1941. Convulsions or convulsions followed by coma were observed in 50, listlessness, drowsiness, stupor and coma in 40 and delirium, irritability and excitement in 10 per cent of the patients. There was no correlation between the severity and the fever of the measles and the occurrence of the encephalitis. Encephalitis usually ensued between the fourth and the sixth day after the measles rash appeared. The longer the neurologic signs persist, the more frequent are the sequelae and the more unfavorable is the prognosis. As the spinal fluid is not pathognomonic of the disease, the diagnosis cannot be based alone on its observation. The cell count of the 8 patients who died was either normal or only slightly above normal; therefore a normal spinal fluid may indicate a more guarded prognosis. A sudden rise in temperature, headaches, convulsions and lethargic stupor in the course of measles are danger signals. Follow-up study on 32 patients two months to seven years after discharge reveals that 22 have sequelae.

American Journal of Ophthalmology, Cincinnati

26:119-234 (Feb.) 1943

Restoration of the Lower Culdesac: Simple Effective Procedure When Scar Tissue Is Present in Orbit. C. Berens, New York.—p. 119.

Terminology in Ocular Motility and Allied Subjects. W. B. Lancaster, Boston.—p. 122.

*Chorioretinitis Associated with Positive Serologic Tests for Toxoplasma in Older Children and Adults. D. Vail, J. C. Strong Jr., Cincinnati, and W. V. Stephenson, Toledo, Ohio.—p. 133.

Parinaud's Oculoglandular Syndrome: Report of 2 Cases. M. A. Wood, Lincoln, Neb.—p. 141.

Arteritis of Temporal Vessels Associated with Loss of Vision: Report of 2 Cases. R. H. Johnson, R. D. Harley and B. T. Horton, Rochester, Minn.—p. 147.

Pigment of Kayser-Fleischer Ring. R. E. Eckardt, I. H. Stolzar, A. B. Adam and L. V. Johnson, Cleveland.—p. 151.

Effects of Astigmatism on Visibility of Print. M. Luckiesh and F. K. Moss, Cleveland.—p. 155.

Statistical Analysis of Clinical Trachoma. L. A. Julianelle, St. Louis, and J. E. Smith, Rolla, Mo.—p. 158.

Bowen's Disease of Cornea: Case. G. Wise, New York.—p. 167.

Ophthalmic Ointments. L. M. Scheineson, Cincinnati.—p. 171.

Brief Method of Testing Color Vision with Pseudoisochromatic Plates. J. R. Gallagher, Constance D. Gallagher and A. E. Sloane, Andover, Mass.—p. 178.

26:235-342 (March) 1943

Entoptic Methods in Clinical Investigations. B. Friedman, New York. —p. 235.

Effect of Mydriatics on Intraocular Pressure in So-Called Primary Wide Angle Glaucoma. P. C. Kronfeld, H. Isabelle McGarry and H. E. Smith, Chicago.—p. 245.

Metastatic Orbital Infection: Report of Case. F. E. Burch, St. Paul. —p. 253.

Role of Iron, Copper, Zinc and Manganese in Metabolism of Ocular Tissues, with Special Reference to Lens. F. W. Tauber and A. C. Krause, Chicago.—p. 260.

Diagnosis of Ocular Syphilis. B. F. Payne, New York.—p. 266.

Near Horizontal Phoria and Duction Tests: Classification of Findings. S. V. Abraham, Los Angeles.—p. 271.

Studies on Infectivity of Trachoma: XII. Additional Observations on Cultivability of Virus. L. A. Julianelle, St. Louis.—p. 280.

Metastatic Panophthalmitis Followed by Retinal Separation and Recovery. H. C. Donahue, Boston.—p. 283.

Vitamins in Ophthalmology. A. J. Baer, Kansas City, Mo.—p. 286.

Concerning Lagrange's Law of Indirect Ocular War Injuries. P. S Soudakoff, Los Angeles.—p. 293.

Chorioretinitis Associated with Toxoplasma.—Vail and his associates report 6 cases of chorioretinitis of previously unknown etiology in which tests for the neutralization of antibodies for Toxoplasma were positive. The condition was probably congenital in 5 and acquired in 1. The only symptom may be that of poor or decreasing vision. Examination of the fundus usually reveals a chorioretinitic lesion, unilateral or bilateral, having a predilection for the macular area. It has a grayish white center, is irregular, is bordered with dark pigment and is surrounded on one or more sides by faint choroidal hemorrhage. The spread of the lesion is usually in the direction of the hemorrhage. The lesion may be elevated. Iridocyclitis, vitreous opacities, retinitis proliferans and detachment of the retina may result. Central vision is always affected adversely. The authors' present data do not permit a statement as to the incidence of Toxoplasma neutralizing antibodies among the general population, but it evidently is more prevalent than has

been realized heretofore. Many instances of chorioretinitis formerly diagnosed as tuberculous, metastatic or of unknown etiology may be due to Toxoplasma, especially if cerebral calcification is present.

Am. J. Roentgenol. & Rad. Therapy, Springfield, Ill.

49:145-288 (Feb.) 1943

Mediastinal Pleurisy in Infants. R. A. Harvey, Rochester, N. Y. —p. 145.
Study of the "Widened" Mediastinum in Children and Pitfalls in Diagnosis. A. V. Shapiro and L. Bell, New York.—p. 159.
Oil Aspiration Pneumonia. M. Moel and H. K. Taylor, New York. —p. 177.
Roentgenologic Considerations in Diagnosis and Treatment of Diaphragmatic Hernia. S. W. Harrington, Rochester, Minn.—p. 185.
Carcinoma of Head of Pancreas Demonstrating New Signs in Roentgen Diagnosis: Case Report. P. S. Friedman, Philadelphia.—p. 197.
Diagnosis of Posterior Protrusion of the Intervertebral Disk, with Special Reference to (1) Its Differentiation from Certain Degenerative Lesions of the Disk and Its Related Structures and (2) Interpretation of Contrast Myelography. T. Horwitz, Philadelphia.—p. 199.
Intraspinal Thorotrast. W. A. Nosik. Cleveland.—p. 214.
*Pyogenic Osteomyelitis of Thoracic Spine Presenting as Primary Pulmonary Disease. H. A. Solomon and A. L. Bachman, New York. —p. 219.
*Therapeutic Value of Roentgen Treatment in Chronic Asthma. W. M. Hull, R. M. Balyeat and L. K. Chont, Oklahoma City.—p. 227.
Radium Therapy as Aid in Control of Chronic Otorrhea. E. B. Emerson Jr. and A. H. Dowdy, Rochester, N. Y.—p. 234.
Radon Treatment: Mild Radium Therapy; Definition and Method of Application. S. Klinghoffer, Buenos Aires, Argentina.—p. 240.
Effect of Roentgen Irradiation on Capillary Permeability and Inflammation in Skin of Rabbit. R. H. Rigdon and H. Curl, Memphis, Tenn.—p. 250.

Pyogenic Osteomyelitis of Thoracic Spine.—In the developing clinical picture of pyogenic osteomyelitis of the spine, Solomon and Bachman point out, the local or distant paravertebral complications may commonly appear as the primary condition, while extensive destruction of the spine may progress and remain unrecognized. In any instance with high fever, pain in the back over the spine and x-ray evidence of mediastinal widening (mediastinitis) should have the possibility of pyogenic dorsal vertebra osteomyelitis excluded regardless of other pulmonary signs, symptoms or x-ray appearances and despite the failure to demonstrate x-ray changes in the vertebrae. The clinical, pathologic and x-ray features of this condition are discussed and an illustrative case with changes at necropsy is reported.

Roentgen Treatment of Chronic Asthma.—Observations on the roentgen treatment of their first 100 consecutive patients with chronic asthma over six months unexpectedly focused the attention of Hull, Balyeat and Chont on the importance of infection in the asthmatic problem. Because of the superior results in such patients from roentgen therapy the selection of the 1,529 patients treated since has been made easier. Although a number of investigators have used roentgen therapy in the treatment of asthma, none have considered fully the importance of infected accessory nasal sinuses as an etiologic and aggravating factor in severe cases. Most of the patients who received roentgen therapy to the chest also received radiation therapy to the accessory sinuses whenever they were involved. At this time the authors are able to offer the following conclusions on this method of treating severe asthma complicated by infection: 1. Asthma can be controlled in many individuals who did not respond satisfactorily to methods used previously. 2. Radiation therapy in asthma is of definite value to patients with infection in the bronchial tubes and/or the paranasal accessory sinuses. 3. Infection has proved to be of greater importance in the asthmatic problem than previously regarded because of the pronounced response of these individuals to radiation therapy. 4. Radiation therapy of patients with asthma free of infection seems to have little or no effect. 5. The technic of choice is the "cross fire" method in which the dosage is concentrated over the greatest areas of the lungs where most of the bronchial tubes are distributed. 6. The method is not without danger but is safe when accurate, detailed records are kept on each individual and when the dose of radiation is maintained within a safe range. Irradiation of larger areas of the chest appears to have given better results.

American Journal of Tropical Medicine, Baltimore

23:1-140 (Jan.) 1943

Horizons of American Tropical Medicine: Presidential Address, American Society of Tropical Medicine. E. C. Faust, New Orleans.—p. 1.
Some Impressions of Medical Practice in the Tropics: President's Address, 1942, the American Academy of Tropical Medicine. H. C. Clark, Panama, Republic of Panama.—p. 11.
*Modified Intraperitoneal Protection Test for Yellow Fever Based on Greater Susceptibility of Immature White Mice to Extraneural Injection of Yellow Fever Virus. L. Whitman, Rio de Janeiro, Brazil. —p. 17.
*Apparent Recent Extension of Typhus in United States. N. H. Topping and R. E. Dyer, Bethesda, Md.—p. 37.
Study of Deficiencies of Polished Rice in Relation to Beriberi. E. B. Vedder, Washington, D. C.—p. 43.
Therapeutic Interruption of Artificially Induced Malaria Infections. M. F. Boyd, Tallahassee, Fla.—p. 49.
Hematologic and Immunologic Studies on Natural and Induced Leishmaniasis in Paretics. H. A. Senekji, New Orleans.—p. 53.
Observations on Malaria in Presence and Absence of Anopheles Gambiae in Experimental Area (Cumbe) Ceará, Brazil. O. R. Causey, H. M. Penido and L. M. Deane, Aracati, Brazil.—p. 59.
Ecology of Anopheles Gambiae in Brazil. O. R. Causey, L. M. Deane and M. P. Deane, Aracati, Brazil.—p. 73.
Viability of Anopheles Gambiae Eggs and Morphology of Unusual Types Found in Brazil. M. P. Deane and O. R. Causey, Aracati, Brazil. —p. 95.
Poison Cone Shell. W. J. Clench, Cambridge, Mass., and Yoshio Kondo, Honolulu, Territory of Hawaii.—p. 105.
Low Temperature Freezing of Malaria Parasites. R. D. Manwell, Syracuse, N. Y.—p. 123.
Method for Collection, Transportation and Study of Anopheline Eggs and Adults. O. R. Causey, Fortaleza, Brazil.—p. 133.

Intraperitoneal Protection Test for Yellow Fever.—Whitman found that mice between 18 and 21 days of age are intermediate between newborn and adult mice in their susceptibility to the intraperitoneal injection of yellow fever virus. Uniform death may be produced by injecting one tenth of the virus dosage required for adult mice without the need for the additional intracerebral injection of starch. Three times as much virus is required to kill 21 day old mice as it does to kill 18 day old mice.

Recent Extension of Typhus in the United States.—Topping and Dyer present histories of several cases of endemic typhus that occurred in cities not considered within the endemic area in the United States. They recommend that physicians throughout the Midwest and other sections of the country keep endemic typhus fever in mind as a possible diagnosis in cases of fever of undetermined origin, particularly those with an unexplained exanthem.

Archives of Neurology and Psychiatry, Chicago

49:323-488 (March) 1943

*Experimental Studies on Headache: Analysis of Headache Associated with Changes in Intracranial Pressure. E. C. Kunkle, B. S. Ray and H. G. Wolff, New York.—p. 323.
Predisposing Factors in Bromide Intoxication. A. Angyal, Worcester, Mass.—p. 359.
Meningeal Gliomatosis Secondary to Intramedullary Glioma. Roma Amyot, Montreal, Canada.—p. 383.
*Sequelae of Equine Encephalomyelitis. H. H. Noran and A. B. Baker, Minneapolis.—p. 398.
Attempts at Treatment of Schizophrenia and Other Nonepileptic Psychoses with Dilantin. L. B. Kalinowsky and T. J. Putnam, New York.—p. 414.
Effect of Extremes of Environmental Change on Man: President's Address. L. J. Pollock, Chicago.—p. 421.
Effect of Autonomic Drugs on Cerebrospinal Fluid Pressure in Schizophrenic and Other Psychoses. I. Effect of Histamine. E. Friedman and T. Thale, Norwich, Conn.—p. 449.
Electrical Skin Resistance Technic Used to Map Areas of Skin Affected by Sympathectomy and by Other Surgical or Functional Factors. F. G. Whelan and C. P. Richter, Baltimore.—p. 454.

Experimental Studies on Headache.—Kunkle and his associates regularly induced headache in normal erect human subjects by the free drainage of approximately 20 cc. of cerebrospinal fluid. Such drainage headache was reduced in intensity by the intrathecal injection of isotonic solution of sodium chloride and the restoration of the cerebrospinal fluid volume, by tilting the body toward the horizontal or simply by flexion or extension of the head. In its response to postural changes, drainage headache was independent of the estimated intracranial pressure. Drainage headache was usually augmented in intensity during distention of intracranial veins secondary to bilateral jugular compression. In a subject who previously had had

unilateral section of the roots of the fifth and ninth cranial and the upper four cervical nerves induced drainage headache was absent over the homolateral frontotemporal area. This indicates that the afferent impulses from the frontal portion of the area of drainage headache traverse the fifth cranial nerve. Thus it is inferred that drainage headache is caused primarily by traction by the brain on various structures sensitive to pain which anchor it to the cranium; dilatation of some of these structures, the intracranial veins and increase in brain volume are suggested as joint factors in the augmented traction which follows drainage of fluid and leads to headache. The headache that often follows lumbar puncture has predictable and unique features, all of which indicate its similarity to drainage headache. The usual variety of postpuncture headache is similar in type and mechanism to the headache induced by drainage of cerebrospinal fluid; i. e., it is caused by dilatation of and traction on intracranial vascular structures sensitive to pain. It is probably secondary to a prolonged leakage of fluid through the dural hole in the lumbar sac produced by the operator's needle. The headache often associated with increased intracranial pressure has been assumed, but never proved, to be related to the increased pressure. Present studies indicate that, in the production of headache, increased intracranial pressure is neither a prime nor an essential factor. From the data it is concluded that the headache associated with decreased or increased intracranial pressure results from traction on or displacement of intracranial structures sensitive to pain and is by itself independent of generalized intracranial pressure changes.

Sequelae of Equine Encephalomyelitis.—Noran and Baker studied the pathologic changes in the nervous system of a child who died three years and five months after contracting equine encephalomyelitis at the age of 5 months. During the years following recovery from the acute illness convulsive seizures, spasticity of all limbs, atrophy of the optic nerves, mental retardation and progressive cerebral atrophy developed. The observations represent the first report on the chronic end results of infection with the western strain of equine encephalitis. The neurologic lesions consisted chiefly of a destructive process which had produced multiple glia-lined cavities within the frontal lobes and widespread degeneration of the parenchymal elements throughout the brain. Many of the vessels were occluded by an endothelial increase or by deposition of calcium within their lumens. The extensive vascular damage, with occlusion of the lumens and ischemia, appears to be the primary cause of the tissue damage in this disease and suggests a vascular spread of the virus.

Archives of Surgery, Chicago

46:307-458 (March) 1943

Lesions of Supraspinatus Tendon: Degeneration, Rupture and Calcification. C. L. Wilson, Montreal, Canada.—p. 307.
Effects of Administration of Sodium Sulfadiazine to Dogs. B. Maisel, Boston; B. McSwain and F. Glenn, New York.—p. 326.
Epidermoid Carcinoma of Anus and Rectum. R. B. Cattell and A. C. Williams, Boston.—p. 336.
*Dermoid and Epidermoid Tumors (Cholesteatomas) of Central Nervous System: Report of 23 Cases. C. W. Rand and D. L. Reeves, Los Angeles.—p. 350.
*So-Called Benign Metastasizing Goiter: Report of 2 Cases with Intracranial Metastasis. H. H. Friedman, Brooklyn.—p. 377.
Solid Carbon Dioxide Ferric Chloride Technic for Hemostasis: Experimental Study of Its Effectiveness in Brain, Viscera and Superior Sagittal Sinus. J. Ebin, New York.—p. 386.
Treatment of Acute Arterial Occlusion by Means of Intermittent Venous Occlusion: Report of Case. R. R. Linton, Boston.—p. 395.
*Demerol: Substitute for Morphine in Treatment of Postoperative Pain. R. C. Batterman and J. H. Mulholland, New York.—p. 404.
Misconception About the "Springiness" of the Longitudinal Arch of the Foot. P. W. Lapidus, New York.—p. 410.
Review of Urologic Surgery. A. J. Scholl, Los Angeles; F. Hinman, San Francisco; A. von Lichtenberg, Mexico, D. F., Mexico; A. B. Hepler, Seattle; R. Gutierrez, New York; G. J. Thompson, J. Priestley, Rochester, Minn.; E. Wildbolz, Berne, Switzerland, and V. J. O'Conor, Chicago.—p. 422.

Cholesteatomas of Central Nervous System.—Eleven of the 23 epidermoids and dermoids (cholesteatomas) of the central nervous system that Rand and Reeves discuss are instances of diploic or cranial epidermoids. The cases represent tumors of the type observed in persons admitted to the neurosurgical service or discovered on postmortem examination at the Los Angeles County General Hospital and cases of such neoplasms studied in private practice. As far as the authors know fewer than 200 epidermoids of the central nervous system have been reported. The intracranial variety is seldom diagnosed preoperatively. The extradural or diploic type can be recognized roentgenographically. The diploic type is easily accessible surgically and the operative results are exceptionally good. Sebaceous cysts of the scalp can be distinguished pathologically from epidermoid tumors by the absence of squamous epithelium and of keratohyaline granules and the presence, instead, of a secreting type of epithelium in the former. The fact that such epidermoids are sometimes overlooked may be given as the reason that Mahoney was able to find only 23 diploic epidermoids among the 142 that he found reported in the literature in 1936. Although complete extirpation of these tumors is necessary to prevent recurrence, this often is not feasible with intracranial epidermoids because of their extent and attachment to vital structures. The signs and symptoms of epidermoids of the cerebellopontine angle are similar to those of acoustic neurinomas, with the exception that cranial nerves on the affected side appear to be more definitely involved. "Epidermoid" and "dermoid" seem the most satisfactory terminology for these tumors. The use of the term "cholesteatoma" is unfortunate because it refers to a chemical by-product which is neither an essential nor an invariable constituent of these tumors.

So-Called Benign Metastasizing Goiter.—Friedman's first illustrative case of "benign metastasizing goiter" neatly falls into this category. Yet in spite of the benign microscopic appearance of both the primary lesion and the secondary lesions the condition is regarded malignant. Secondary deposits in the skull indicate that invasion through the blood vessels had taken place at some time during the presence of the primary neoplasm of the thyroid. This is evidence of a malignant state. The microscopic structure is of little importance in the determination of a malignant condition of thyroid tissue. It is possible that serial sections of the thyroid might have uncovered a miniature carcinomatous area. Such an examination was not feasible in this case because of technical difficulties. Friedman's second case illustrates that metastasis from thyroid carcinoma may bear little or no resemblance to the primary lesion and that unless the primary tumor is also studied the true nature of the condition remains unrecognized. Because of the clinically benign appearance of the thyroid and the benign microscopic character of the cranial tumor, this case would undoubtedly have been recorded in the older literature as metastasizing thyroid adenoma. The tumor's pulsatile nature and the audible bruit are in keeping with the well recognized clinical features of these lesions. Intracranial neoplasms in patients with goiters should be considered metastatic until proved otherwise, even though the lesion of the thyroid appears insignificant. Treatment consists in radical surgical removal of both lesions followed by roentgen therapy.

"Demerol" as Substitute for Morphine.—Batterman and Mulholland used "Demerol" as a substitute for morphine to control the postoperative pain and restlessness of 488 postoperative patients, 165 of whom had had abdominal section. Demerol, also known as dolantin, is the ethyl ester of 1-methyl-4-phenylpiperidine-4-carboxylic acid. The majority had received the drug as a preanesthetic. Among the 164 postoperative patients who received it parenterally after laparotomy, 95.5 per cent of the 182 trials resulted in complete, satisfactory relief of pain, discomfort and restlessness. After procedures other than laparotomy, Demerol was only slightly less effective. Thus in 91.5 per cent of 271 trials in 252 cases, postoperative pain was completely controlled. An additional 5.2 per cent experienced relief for approximately three hours. In only 4 out of 45 trials after rectal operations did the Demerol fail to give a satisfactory response; even in these 4 subsequent administration of a larger dose alleviated pain. Regardless of the severity of the condition, the duration of the operation, the age of the patient and the ultimate prognosis, with rare exceptions, 75 to 100 mg. of Demerol parenterally every three to four hours, if necessary, made the patient comfortable and facilitated the usual therapeutic procedures. Orally, Demerol was effective when pain was not severe or after acute postoperative symptoms had subsided. It is possible to continue to use and to rely on the

oral preparation if postoperative discomfort persists for several days. Postoperatively Demerol rarely caused untoward reactions. The incidence of vomiting was no more than expected after major operations. Since Demerol has been used in the surgical service respiratory depression has not occurred postoperatively. This is a distinct advantage over the opiates. The incidence of catheterization within twenty-four to forty-eight hours during ten months among 160 consecutive postoperative patients receiving morphine was 12.5 per cent as compared to 7.8 per cent among 178 consecutive patients operated on during eleven months. The majority of the patients who were catheterized, whether they received morphine or Demerol, had had a rectal operation, a herniorrhaphy or an operation on the lower part of the abdomen. Although the number of such postoperative patients is small and the difference in the incidence of urinary retention between patients given morphine and those given Demerol may not be statistically significant, it is the authors' belief that Demerol is less likely to produce this undesirable complication. In many patients "gas" pains were effectively relieved. The antispasmodic action of Demerol and the lack of constipation may be definite advantages of the drug. It has little if any action on the cough reflex and hence does not encourage bronchial secretion. Its atropine-like action on mucous secretions and the bronchial dilatation that it produces are advantages. The latter is of particular help to patients with bronchial asthma, for whom morphine is contraindicated. Its only disadvantage as far as its postoperative use is concerned is its short action. There is no particular danger of causing undue depression through frequent or large doses.

Delaware State Medical Journal, Wilmington

15:17-34 (Feb.) 1943

Medical Control of Industrial Exposure to Toxic Chemicals. J. H. Foulger, Wilmington.—p. 17.

Endocrinology, Springfield, Ill.

32:229-304 (March) 1943

Stimulation of Mammary Glands in Hypophysectomized Rats by Estrogen and Testosterone. S. L. Leonard, Ithaca, New York.—p. 229.
Influence of Age on Effect of Thyroidectomy in Rhesus Monkey. W. Fleischmann, H. B. Shumacker Jr. and W. L. Straus Jr., Baltimore. —p. 238.
*Effects of Insulin on Blood Lipids of Man. A. Kaplan, C. Entenman and I. L. Chaikoff, Berkeley, Calif.—p. 247.
Nonspecific Results Obtained with Micromethod for Assay of Prolactin. E. L. Lahr, R. W. Bates and O. Riddle, Cold Spring Harbor, N. Y. —p. 251.
Reaction of Chorionic Gonadotropin with Phenylisocyanate. F. Bischoff, Santa Barbara, Calif.—p. 260.
Thyroid Inhibiting Action of Hypophyses of Rats Fed with Thyroid. J. Reforzo-Membrives, Buenos Aires, Argentina.—p. 263.
Progonadotropic and Aspecific Effects of Serum of Horse Immunized with Extracts of Sheep Pituitary Glands. H. N. Marvin, Little Rock, Ark., and R. K. Meyer, Madison, Wis.—p. 271.
Role of Bile in Absorption of Steroids. H. Selye, Montreal, Canada. —p. 279.
Additional Data on Relative Absorption Rates of Subcutaneous Pellets of Various Crystalline Compounds in Rat. T. R. Forbes, Baltimore. —p. 282.
Further Studies on Relationship of Progesterone to Ovulation and Luteinization in Persistent Estrous Rat. J. W. Everett, Durham, N. C.—p. 285.
Selective Bismuth Melanosis of Female Genital Tract Induced by Treatment with Sex Hormones. F. Sulman, S. Levy-Hochman and H. G. Tietz, Jerusalem, Palestine.—p. 293.
Relation of Certain Endocrine Glands to Body Weight in Growing and Mature Guinea Pigs. J. P. Mixner, A. J. Bergman and C. W. Turner, Columbia, Mo.—p. 298.

Effects of Insulin on Blood Lipids of Man.—Kaplan and his associates measured the free and esterified blood cholesterol, total fatty acids and phospholipids in 9 schizophrenic subjects in whom hypoglycemia was maintained for several hours by the administration of up to 460 units of insulin. During insulin shock the blood sugar fell as low as 15 or 17 mg. and remained at low levels for nearly two hours. The depth of shock observed in the subjects was variable. The almost complete removal of dextrose from the blood stream failed to change appreciably the concentrations of cholesterol, fatty acids or phospholipids of the blood. The injection of 460 units of insulin had as little effect as 110 units.

Gastroenterology, Baltimore

1:133-248 (Feb.) 1943

Effect of Oral Administration of Sulfonamide Compounds on Fecal Flora of Patients with Nonspecific Ulcerative Colitis. Enid C. Rodaniche, J. B. Kirsner and W. L. Palmer, Chicago.—p. 133.
*Clinical Use of Succinylsulfathiazole (Sulfasuxidine). B. B. Crohn, New York.—p. 140.
Chronic Ulcerative Colitis as Cause of Retarded Sexual and Somatic Development. R. E. Benson and J. A. Bargen, Rochester, Minn. —p. 147.
Lymphosarcoma of Intestine. F. C. Usher and C. F. Dixon, Rochester, Minn.—p. 160.
Principles in Use of Vitamins in Treatment: I. Vitamin Deficiency Diseases. D. L. Wilbur, San Francisco.—p. 179.
Studies of Enzyme Activities of Duodenal Contents as Means of Evaluating Pancreatic Function. A. H. Free, A. J. Beams and V. C. Myers.—p. 188.
Effect of Gastrectomy on Growing Monkeys. S. Freeman, V. H. Hough, H. Wigodsky and A. C. Ivy, Chicago.—p. 199.
*Gastroscopic Findings and Clinical Symptoms of Chronic Superficial Atrophic Gastritis. C. F. Barnett, Atlanta, Ga.—p. 211.
Gastroscopic Findings in Cholecystectomized Patients. J. T. Howard, Baltimore.—p. 217.
Epigastric Symptoms in Alcoholics With and Without Gastritis. S. Gray, Chicago.—p. 221.

Succinylsulfathiazole.—During the last six months Crohn subjected 28 patients with nonspecific ulcerative colitis, 8 with ileitis or ileojejunitis and 1 with intestinal actinomycosis to therapeutic trial by the administration of succinylsulfathiazole. The dose was 0.25 Gm. of the drug per kilogram of body weight for ten days; after a lapse of five days a second series was given. With severe diarrhea some form of opium should be administered concurrently to slow down the intestinal discharge and to permit a natural concentration of the drug. Toxic effects were few, loss of appetite was common, nausea or vomiting was rare and occasionally there was a complaint of headache or malaise and mild prostration. In 5 an apparent and quick symptomatic cure was obtained and 11 more of the ulcerative colitis series showed definite improvement. The drug is a welcome addition, particularly since it exhibits no toxic by-effects and can be pushed in large doses with relative impunity. The best results are seen in acute colitis; therefore, if the disease should be recognized in its early acute stages and treated intensively with succinylsulfathiazole the whole picture of the lingering debilitating discouraging chronic ulcerative colitis might be altered. Three out of 4 patients with colitis can be carried to a stage of remission. Preventing recurrences is as great as if not greater than that of inducing the remission. Perhaps the continuous administration of the drug will meet this problem. The case for ileitis is less promising. Terminal ileitis is associated with delay in the distal loops of the small intestine, and a concentration of the drug at this point may overcome a pathologic process if the disease is really an infection. The patient with actinomycosis and several fistulas to the abdominal wall showed definite improvement. Under succinylsulfathiazole the fistulas showed a tendency to dry up, discharge diminished and the macerated dermal tissues of the abdominal wall were enabled to undergo a definite stage of granulation.

Chronic Superficial Atrophic Gastritis.—Barnett believes that the moot point as to what constitutes an early chronic pathologic mucosal change may be partially resolved by its persistence. The presence of adherent mucus, patchy redness, definite erosions and edema, all still present on gastroscopic study after an interval of one month, should satisfy the most skeptical. Mucosal hemorrhages do not all progress into pigmented spots but may become erosions or heal. No clear demarcation between the superficial and the atrophic stages can be made. The superficial stage does occur in younger persons and has a shorter duration than the atrophic phase. Superficial gastritis may progress to true atrophic gastritis. In patients who have had frequent gastroscopic examinations, small patchy areas of atrophy can be observed to increase in size and become possible precursors of gastric carcinoma, gastric polyps and sometimes Addison's anemia. The transition of the superficial phase of gastritis into the atrophic phase, accompanied by increased manifestations of malaise, weakness, fatigue and nervousness, is described. Functional gastrointestinal irritability, as illustrated by mucous colitis, was not found to predispose to or to be etiologically related to superficial or atrophic gastritis.

However, the occurrence of mucosal hemorrhage in 39 per cent of patients with mucous colitis suggested that mucosal gastric hemorrhage, not accompanied by gastritis, may have some relation to gastrointestinal irritability.

Journal of Experimental Medicine, New York

77:195-296 (March) 1943

Ultracentrifuge as Aid in Detection of Poliomyelitis Virus. J. L. Melnick, New Haven, Conn.—p. 195.
Distribution of Water and Electrolytes Between Blood and Skeletal Muscle in Experimental Hypertension. Lillian Eichelberger with technical assistance of M. Roma, Chicago.—p. 205.
State of Vessels of Mesentery in Shock Produced by Constricting Limbs and Behavior of Vessels Following Hemorrhage. I. H. Page, Indianapolis, and R. G. Abell, Philadelphia.—p. 215.
Oral Papillomatosis of Rabbits: Virus Disease. R. J. Parson, Ann Arbor, Mich., and J. G. Kidd, New York.—p. 233.
Studies on Nature of Virus of Influenza: I. Dispersion of Virus of Influenza A in Tissue Emulsions and in Extraembryonic Fluids of Chick. L. A. Chambers and W. Henle, Philadelphia.—p. 251.
Id.: II. Size of Infectious Unit in Influenza A. L. A. Chambers, W. Henle, Philadelphia; M. A. Lauffer, Princeton, N. J., and T. F. Anderson, Camden, N. J.—p. 265.
Ten Amino Acids Essential for Plasma Protein Production Effective Orally or Intravenously. S. C. Madden, J. R. Carter, A. A. Kattus Jr., L. L. Miller and G. H. Whipple, Rochester, N. Y.—p. 277.

Journal of Nat. Cancer Inst., Washington, D. C.

3:349-448 (Feb.) 1943

Carcinogenic Action of Two Azo Compounds in Mice. H. B. Andervont and J. E. Edwards.—p. 349.
Response of Strain A Female Mice to Small Amounts of *o*-Aminoazotoluene. H. B. Andervont and J. E. Edwards.—p. 355.
Influence of Hybridization on Occurence of Mammary Tumors in Mice. H. B. Andervont.—p. 359.
Absorption of Subcutaneously Implanted Pellets of Diethylstilbestrol in Men. M. B. Shimkin and L. Zon.—p. 367.
Types of Tumor Induced by Ultraviolet Radiation and Factors Influencing Their Relative Incidence. H. G. Grady, H. F. Blum and J. S. Kirby-Smith.—p. 371.
Role of Thrombocytopenia in Hemorrhage Produced in Sarcoma 37. M. B. Shimkin and L. Zon.—p. 379.
Hydrolysis of Glutathione by Cathepsins of Normal Rat Tissues and Rat Hepatoma 31. Mary E. Maver and J. W. Thompson.—p. 383.
Cytochrome Oxidase and *d*-Amino Acid Oxidase in Tumor Tissue. J. Shack.—p. 389.
Further Studies of Liver Catalase Activity of Tumor Bearing Animals. J. P. Greenstein.—p. 397.
Note on Copper Content of Tissues of Tumor Bearing Animals. J. P. Greenstein and J. W. Thompson.—p. 405.
Peculiar Growth Lesions in Frogs Induced by Irradiation of Sperm Cells with X-Rays. P. S. Henshaw.—p. 409.
Tumor Enzymology. J. P. Greenstein.—p. 419.

Journal of Nervous and Mental Disease, New York

97:261-388 (March) 1943

Significance of Psychologic Research in Schizophrenia. K. Goldstein, Boston.—p. 261.
Guillain-Barre Syndrome: Early Diagnosis (Case Report). D. Shaskan, New York.—p. 280.
Psychiatric Contribution to Problem of Morale. L. R. Sillman, New York.—p. 283.
*Cardiovascular Response to Acetyl-Beta-Methylcholine (Mecholyl) in Mental Disorders. L. L. Altman, Ossining, N. Y.; D. Pratt, New York, and J. M. Cotton, Hartford, Conn.—p. 296.
Disorder in Body Image in Clinical Pictures of Psychoses. G. Bychowski, New York.—p. 310.

Cardiovascular Response to Mecholyl in Mental Disorders.—Altman and his co-workers tried to determine whether or not there is any significant or characteristic difference between the cardiovascular reactions of 49 male and 24 female psychoneurotic, psychotic and normal subjects to acetyl-beta-methylcholine chloride subcutaneously. As a rule the pulse rate increases from 15 to 60 beats per minute after the injection of the drug; the average increase was around 35 beats. The maximal reading was usually obtained three minutes after injection. This was followed either by a precipitate or by a gradual fall, so that the rate reached the preinjection level about twenty-one minutes after the drug was given. Two characteristics of the pulse and diastolic pressure curves were apparent, regardless of whether the subject was normal, psychoneurotic or psychotic. The two curves of any single patient pursued remarkably parallel courses in relation to time; the two exhibited maximal deviation from the preinjection level at the same time and returned to that level in about the same time. However, the curves were in general not similar quantitatively—a definite increase in pulse rate was not necessarily associated with a pronounced fall in diastolic pressure. Also little correlation could be made out between the curves and the diagnosis. There was no significant difference except for a slight tendency for the recovery time to be prolonged as the anxiety to the depressed to the hebephrenic group was passed. The systolic blood pressure of the anxiety psychoneurotic group of patients fell within a range of —41 to —99, that of the manic depressive patients between —107 and —201 and that of the hebephrenic dementia precox patients between —205 and —299. Normal individuals when tested with epinephrine or mecholyl may react like the paranoid patients, and this raises the highly speculative question as to whether a normal subject with a high score may not be predisposed to a mental disorder, such as anxiety, and whether one with a low score may not be exhibiting a predisposition for hebephrenic schizophrenia.

New Jersey Medical Society Journal, Trenton

40:81-120 (March) 1943

Treatment of Burns and Foreign Bodies of Eye. J. M. Carlisle, Westfield, and A. Gibson, Scotch Plains.—p. 89.
The Hospital, Its Trustees and Medical Staff. J. T. Hanan, Montclair.—p. 95.
Combined Use of Arsenicals and Bismuth Compounds in Syphilotherapy. I. Silverman, Clifton, and A. Kovin, Passaic.—p. 98.

New York State Journal of Medicine, New York

43:385-480 (March 1) 1943

*Differential Diagnosis of Hyperparathyroidism, with Especial Reference to Albright's Syndrome. L. W. Gorham, Albany.—p. 415.
Syphilis as Cause of Delayed Pneumonic Resolution. J. F. Worthen and M. S. Rapp, Staten Island.—p. 419.
Conservative Management of Obstetric Patients Presenting Premature Rupture of Fetal Membranes. B. J. Pisani, New York.—p. 421.

Hyperparathyroidism and Albright's Syndrome.—In the differential diagnosis of hyperparathyroidism, Gorham states, Albright's syndrome, osteitis fibrosa cystica, brown pigmented spots and precocious puberty (particularly in females), is most important. In a total of 51 collected reports of patients, 20 were uselessly subjected to operation and 4 of the 20 were operated on a second time. Albright's syndrome is the most important condition to be differentiated from hyperparathyroidism, as records show that confusion arises in 40 per cent of cases. The syndrome occurs in a complete and in an incomplete form. The disease starts in early childhood, and in nearly all victims with the complete type symptoms develop before the age of 10. Patients with the incomplete form may be 30, 40 or older before clinical manifestations appear. The disease is more frequent in females. While the x-ray appearance of the bones may be confusing, it should be emphasized that in Albright's syndrome the lesions are scattered, localized and multiple and that considerable portions of the skeleton are unaffected. This patchy distribution is in sharp contrast to the general decalcification of all osseous tissue found in hyperparathyroidism and osteomalacia and is more like Paget's disease and xanthomatosis. Sexual and somatic precocity are present regularly in the afflicted female and, if accompanied by cutaneous pigmentation or lesions of the bone, they should call Albright's syndrome to mind. Calcium and phosphorus determinations on the blood usually distinguish Albright's syndrome from hyperparathyroidism, but occasionally a blood calcium above 11 mg. and a blood phosphorus below 3 mg. may cause confusion.

Rhode Island Medical Journal, Providence

26:19-32 (Feb.) 1943

President's Address: Providence Medical Association. H. E. Utter, Providence.—p. 19.
Progress Notes of Forty-Eighth Evacuation Hospital. W. L. Leet.—p. 22.
Posterior Root Section for Athetosis: Thirty-Two Year Report. L. C. Kingman, Providence.—p. 26.

Rocky Mountain Medical Journal, Denver

40:145-216 (March) 1943

Industrial Disease and the Insurance Carrier. R. N. Gray, Hartford, Conn.—p. 162.
Digestive Disorders in the Tuberculous and Their Management. J. L. Kantor.—p. 167.
Protective Foods in Time of War. H. Gauss, Denver.—p. 174.
Sulfonamides. T. D. Cunningham, Denver.—p. 178.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Brain, London

65:343-466 (Dec.) 1942

Efferent Pathway for Pupillary Contraction. P. W. Nathan and J. W. A. Turner.—p. 343.
Oligodendrogliomatosis of Cerebrospinal Pathway. Diana J. K. Beck and Dorothy S. Russell.—p. 352.
Functional Recovery Following Nerve Grafts and Other Types of Nerve Bridge. E. Gutmann and F. K. Sanders.—p. 373.
Giant Cells of Betz, Motor Cortex and Pyramidal Tract: Critical Review. F. M. R. Walshe.—p. 409.

British Journal of Radiology, London

16:31-68 (Feb.) 1943

Beam Direction in Radiotherapy: Symposium. F. Ellis, C. W. Wilson, J. L. Dobbie, L. G. Grimmett and A. Green.—p. 31.
Intraoral Radium Treatment of Cancer of Mouth. J. R. Nuttall.—p. 45.
Protection in Industrial Radiology. W. Binks.—p. 49.
Calcified Nonparasitic Cyst of Spleen. A. Elkeles and J. I. P. James.—p. 59.
Effect of X-Rays on Cells Cultivated in Vitro: Part II. Recovery Factor. Ilse Lasnitzki.—p. 61.

British Medical Journal, London

1:277-308 (March 6) 1943

Probable Influence of Health Education on Improving Appendicitis Mortality Rate. D. B. Armstrong.—p. 277.
Effect of *pH* of Blood on Hemolysis: With Special Reference to Blackwater Fever. F. Smith and R. W. Evans.—p. 279.
Delay in Diagnosis and Sanatorium Treatment of Phthisis. B. Mann.—p. 283.
Lymphadenoma and Leukemia. A. W. Gill and A. J. McCall.—p. 284.

1:309-340 (March 13) 1943

*Epidemic Nausea and Vomiting. W. H. Bradley.—p. 309.
Rubella Meningoencephalitis: 2 Cases. R. I. C. Bradford.—p. 312.
Planning for Treatment of Head Injuries. H. Cairns.—p. 313.
Rehabilitation in an Emergency Medical Service Orthopedic Unit. A. S. Malkin and G. Parker.—p. 315.
Universal Apparatus for Peroral Intratracheal Anesthesia. G. Humby; with Anesthetist's Point of View by Margaret Hawksley.—p. 317.
*Impetigo Contagiosa in Services: with Special Reference to Its Treatment with Sulfathiazole. G. A. G. Peterkin and E. C. Jones.—p. 318.

Epidemic Nausea and Vomiting.—Bradley relates that a widespread outbreak of nausea and vomiting was observed in Denmark in 1935. Similar outbreaks were reported in schools and among the general population in England. Although the disease is of minor significance, clinically and economically it may give rise to considerable administrative uncertainty. Those who are unfamiliar with the clinical and epidemiologic picture may be led to suspect food poisoning or dysentery and be stampeded into ineffectual and wasteful action. It is important that at present "epidemic nausea" should be considered in the differential diagnosis of all outbreaks of gastroenteritis. Observers believed that epidemic nausea and vomiting is an upper respiratory infection with an incubation period of from two to seven days and is probably due to a virus. The described outbreak strengthened the impression that the disease is communicable and that the port of entry is the upper respiratory passages. The incubation period was probably within the range of from two to seven days but could not be determined accurately. Infection ex alimentatione immediately preceding the attack was excluded.

Sulfathiazole for Impetigo Contagiosa.—Peterkin and Jones state that the effect of local sulfanilamide and sulfapyridine therapy in impetigo was sometimes striking but often disappointing. Sulfathiazole proved to be the drug of choice. Sulfathiazole in a water miscible cream or a starch and zinc oxide paste was used in 120 cases; of 27 not cured by sulfathiazole, 17 were treated with 2.5 per cent cream. The 93 cures were obtained in an average of 6.8 days, which compares favorably with the average stay of impetigo cases in the hospital (14.6 days). The vehicle used seemed to make little difference in the healing rate of the skin: cases treated with the 5 per cent paste healed in 6.5 days and those with the 5 per cent cream in 6.11 days. Results obtained with 5 per cent concentration were better than those with 2.5 per cent and compared favorably with results from 10 per cent. Sulfadiazine and sulfamethazine were used in a number of cases, but the results were disappointing. Sodium sulfathiazole (5 per cent cream) gave somewhat erratic results but was definitely better than sulfadiazine and sulfamethazine. Quick healing was also obtained with sulfathiazole in ecthyma and early infective dermatitis, but results were disappointing in infectious eczematoid dermatitis, acne vulgaris and sycosis.

1:341-370 (March 20) 1943

*Present Status of Aminoacridine Compounds (Flavines) as Surface Antiseptics. C. H. Browning.—p. 341.
Hernia Through Foramen of Winslow, Emerging Through Gastrohepatic Omentum. H. Edwards and W. Stewart.—p. 343.
*Use of Methedrine, New Blood Pressure Raising Drug, in Surgical Operations. H. Dodd and F. Prescott.—p. 345.
Tetrachlorethane Poisoning. G. Forbes.—p. 348.
Effort Syndrome in Iceland. D. E. Rodger.—p. 351.

Aminoacridine Compounds as Surface Antiseptics.—Browning points out that limitations in the performance of the sulfonamides suggested a return to the aminoacridine compounds which were introduced as surface antiseptics in 1917. These substances are powerfully bacteriostatic toward the important pyogenic organisms and serum does not diminish their action, although blood somewhat reduces it and pus greatly. Their toxicity for the body as a whole is not high, they are comparatively unirritating, and they interfere little with phagocytosis. They are highly effective in preventing the development of infection with various organisms, including streptococci and certain gas gangrene anaerobes when applied to tissues at the site of inoculation. They can control established suppuration in wounds when drugs of the sulfonamide group have failed. Retardation of granulation and healing tends to follow continued use of these compounds, so that it may be advantageous to resort to other treatment later. The important point is their capacity to prevent or control infection.

N-Methylamphetamine, a New Blood Pressure Raising Drug.—Dodd and Prescott studied the effects of N-methylamphetamine, a sympathomimetic drug known also as Methedrine or Pervitin. Blood pressure and pulse rates were recorded every three to five minutes in one hundred and thirty operations. In 54 cases the systolic pressure or the pulse pressure dropped sufficiently for the patient to need a pressor agent. N-methylamphetamine was used solely in these cases and was administered when the systolic pressure fell to and remained at 80 mm. or less or when the pulse pressure was 10 mm. or less; twenty minutes was allowed first for natural recovery. The capacity of N-methylamphetamine to meet the needs of these patients has been studied under average general hospital operating conditions. Anesthetics included all those in common use. N-methylamphetamine has been found to be an effective blood pressure raising drug with a prolonged action. The effective dose is from 15 to 30 mg. intramuscularly, or 10 to 20 mg. intravenously plus a depot dose of 10 to 20 Gm. intramuscularly. In 97 per cent of the cases the systolic pressure was restored to normal levels in from two to eighteen minutes. The systolic pressure was raised from an average of 66 mm. to an average maximum of 135 mm. and settled to an average minimum of 124 mm. There is no abnormally high rise if the dose is carefully calculated. One injection was adequate for 81 per cent of patients; repeated injections were given to 17 per cent; 1 patient (2 per cent) did not respond. The blood pressure was maintained throughout operation and for several hours after.

Medical Journal of Australia, Sydney

1:89-112 (Jan. 30) 1943

Anesthesia in Military Hospitals. W. B. Parsons.—p. 89.
Uterine Prolapse: Changing Viewpoints in Regard to Its Etiology and Treatment. G. G. Bradley.—p. 93.
Observations on Subtertian Malaria. A. D. Cust.—p. 95.

1:113-134 (Feb. 6) 1943

X-Ray Localization of Foreign Bodies. E. W. Frecker.—p. 113.
Foreign Bodies in Relation to War Wounds. R. V. Graham.—p. 117.
Place of Quinine in Treatment of Subtertian Malaria. A. D. Cust.—p. 119.

Schweizerische medizinische Wochenschrift, Basel

72:1053-1088 (Sept. 26) 1942

*Bronchial and Pulmonary Cancer: Incidence, Pathologic and Etiologic Aspects. C. Wegelin.—p. 1053.
*Clinical Aspects of Bronchial and Pulmonary Cancer. R. Staehelin.—p. 1063.
*Radiologic Aspects of Bronchial and Pulmonary Cancer. H. R. Schinz.—p. 1067.
*Metal as New Carcinogenic Principle. H. R. Schinz.—p. 1070.
Colchicine in Therapy of Mouse Cancer. J. L. Nicod and J. Regamey.—p. 1074.
Artificial Cancerogenesis in Variously Ionized Atmospheres. G. Joyet.—p. 1077.
Extensive Atypical Cancroid Epithelial Proliferation of Skin Following Smallpox Vaccination. B. Walthard.—p. 1078.
Insurance Aspects of Cancer in Swiss Army. H. von Meyenburg.—p. 1079.
Question of Carcinogenic Action of Soot from Oil Burners. G. Miescher and F. Schwarz.—p. 1081.
Production of Cancer by Photosensitization; Experimental Study. G. Miescher.—p. 1082.

Bronchial and Pulmonary Cancer.—Wegelin directs attention to the great increase in pulmonary cancer and to the question of whether this increase is real or apparent. Various factors may be responsible for the apparent increase, such as improvement in histologic diagnosis and the change in the necropsy material. The change in age levels in the necropsy material deserves consideration. Statistical studies made at the author's request suggest that the higher age levels are a contributing cause in the increased frequency. Pulmonary cancer is from three and a half to four and a half times more frequent in men than in women according to several statistics. The macroscopic picture is not uniform. Wegelin accepts W. Fisher's classification into (1) a nodular and massive form, (2) a diffuse infiltrating form (pneumonia-like) and (3) a medullar miliary form. Pulmonary cancer is slightly more frequent on the right than on the left side. Secondary changes occur in the form of necroses and autolytic decomposition. Metastases are frequent; in the author's material of 117 cases, metastases were not found in only 13. The etiology of pulmonary cancer rests on a rather insecure basis. The necessary statistical proofs for the role of chronic irritants in the pathogenesis of pulmonary cancer are still largely absent. W. and C. Macklin are inclined to ascribe a more important role to the hereditary than to the external factors. The author is inclined to believe that heredity as well as external irritants play a part.

Clinical Aspects of Bronchial and Pulmonary Cancer.—Staehelin reports observations on 115 cases observed since 1924. The cases were verified by necropsy and 1 by a microscopic examination of lung puncture. All except 3 proved to be primary bronchial carcinomas; 2 were primary tracheal carcinomas and 1 alveolar carcinoma. No one symptom was present in all cases. Cough, the most frequent symptom, was absent in 19. Expectoration, the next most frequent symptom, was absent in 30 per cent. Bloody sputum, reputedly suggestive of bronchial carcinoma, was detected in only 38 cases. The raspberry jelly sputum, regarded as especially characteristic, was present in only 3, apparently less often than in other pulmonary diseases. All sputums were searched for tumor cells but were detected in only 1. Dyspnea was present in 73, cyanosis in 40 and the supposedly frequent chest and back pains in 45. Auscultation and percussion failed to reveal abnormalities in 42 per cent. Many symptoms result from complications or from local metastases. Exudative pleurisy often masks the primary tumor; this was observed in 29 cases. Hoarseness existed in 21, recurrent nerve paralysis in 10, audible stridor in 7, dysphagia in 5 and foreign body sensation in 2. These symptoms were caused by the enlargement of intrathoracic lymph nodes. Enlarged extrathoracic lymph nodes were noted in 19 cases (sixteen times in the neck). General symptoms included clubbed fingers, febrile or subfebrile temperature, weakness and emaciation. Only 78 of the patients exhibited cachexia. The peripheral tumors are not all alveolar tumors but may originate from the epithelium of the small bronchial ramifications. The majority of carcinomas begin in the hilus, in one of the main bronchi. The further dissemination along the lymph passages of the lung may produce reticulated outlines in the roentgenogram. Bronchial cancers may give rise to pulmonary metastases which produce spherical shadows. Metastases into the regional lymph nodes are much more frequent than those into the lung tissue. Necropsy discloses them in the majority of the cases. Secondary processes such as pleural exudates, bronchostenosis or atelectasis obscure the roentgenographic appearance even more frequently than do the lymph node metastases. Roentgenoscopy usually reveals a combination of tumor shadows with shadows of secondary processes. Bronchography and particularly bronchoscopy improved the diagnostic results. Early diagnosis is rarely possible because even small bronchial carcinomas may give rise to lymph node metastases. The prognosis is bad; only 7 of the patients survived for more than two years.

Bronchial and Pulmonary Cancer: Radiologic Aspects.—Schinz reviews 79 cases of pulmonary cancer observed at the radiologic institute of Zurich during the decade 1930-1940. The average age of the patients, of whom 71 were men, was 59.8 years. Bronchography was done in 21 cases, with positive results in 19. Bronchoscopy combined with biopsy was performed in 33 cases and gave positive results in one half. Early diagnosis is rare. The clinical picture is dominated by metastases of the regional lymph nodes; the diagnosis is usually made with the cancer in an advanced state. Irradiation produced early palliative results. Noticeable objective and subjective improvement and shrinkage of the tumor in the roentgenogram was observed in 42 per cent of the irradiated patients. The best early results were obtained with protracted fractionated roentgen irradiation. Intrabronchial radium implantation proved ineffective. Pulmonary cancers should be subjected to irradiation because in a certain percentage of the cases life can be made more bearable. In about one fifth of the cases the improvement is considerable but unfortunately not of long duration. Surgery might effect cure in the early stage, but timely recognition is rare. The author has gained the impression that of all cancers the pulmonary ones are least amenable to treatment.

Cancers Produced by Metals.—Schinz reports studies on the possible carcinogenic action of metals. The aim was to throw light on the pulmonary cancers of the Schneeberg region, a mining district in which cobalt, nickel, bismuth, arsenic, iron and uranium ores are mined. Because of comparatively high radium emanation in the Schneeberg mines, it was assumed that the Schneeberg cancers, like those of Joachimsthal, were radioactive cancers or, more correctly, electronic cancers. However, since pulmonary cancers were observed among men working with chromates, doubts were raised as to the radioactive origin of the Schneeberg cancer. Metal depots of chromium, arsenic and cobalt were made in the thighs of rabbits. After three years of observation none of the 21 animals exhibited tumors. Of 12 animals observed for a longer period, 4 are alive, 1 died of cachexia without cancer and 7 died of malignant growths. Four of the cancers were in the lungs, 2 at the site of implantation and 1 in the hollow of the sacrum. The author thinks that the carcinogenic action of metals has been demonstrated, for in view of the rarity of spontaneous cancer in rabbits he doubts that such a high percentage could have had spontaneous cancer.

Revista Médica Latino-Americana, Buenos Aires

28:9-80 (Oct.) 1942. **Partial Index**

Mal de los Pintos. C. Fonso Gandolfo and H. R. Rugiero.—p. 13.
*Action of Estrone on Extrapancreatic Factors of Insulin Resistant Diabetes. F. Rocca and E. Pollack.—p. 23.
Prothrombin Time in Spinal Anesthesia with Nupercaine. A. E. Despontin and R. Quesada.—p. 32.
Gases of Warfare: History and Classification. R. Agrelo and J. M. Franci.—p. 37.
*Experimental Lesions of Dental Origin. A. O. Tachella Costa, A. C. Barañao and E. Fratantoni.—p. 43.

Action of Estrone in Insulin Resistant Diabetes.—Rocca and Pollack point out that the carbohydrate metabolism is regulated by multiple neurohormonal factors. Besides true pancreatic and renal diabetes there are forms in which the insular apparatus of the pancreas does not play the decisive role and in which hyperactivity of the hypophysis, the thyroid or the adrenals is responsible. Symptoms of these types of diabetes disappear if the cause is suppressed by irradiation of the hypophysis, by a thyroidectomy or by removal of the adrenal tumor. Extrapancreatic factors may also inhibit the action of insulin. The authors resorted to estrone therapy for diabetic

patients of both sexes, particularly those of the climacteric age and those with insulin resistance, because this hormone is an antagonist of the hypophysis, particularly of its regulatory effect during the menopause. Their observations on a group of patients suggests that estrone has a beneficial effect on the subjective symptoms, the general condition, the carbohydrate tolerance and the insulin requirement. In 1 case a daily dose of 270 units of insulin did not counteract the ketosis and glycosuria and did not reduce the diuresis, but the condition improved when estradiol benzoate was given in large doses.

Experimental Dental Lesions of Glandular Origin.—Tachella Costa and his collaborators subjected young dogs to thyroparathyroidectomies in order to ascertain whether dental disorders would result. In some of the animals the loss of parathyroids did not cause early or late tetany, probably because of the existence of aberrant parathyroids. The teeth in these dogs were smaller, the implantation was defective and the eruption retarded. In the dogs in which thyroparathyroidectomy resulted in postoperative tetany the dental lesions were more pronounced; they involved the calcification, leading to the destruction of the enamel and exposure of the dentin. The lesions are the result of changes in the calcium metabolism, which in turn had been caused by the parathyroid deficiency. Compensatory endocrine treatment did not modify the lesions.

Lekarz Wojskowy, Edinburgh

34:27-64 (Sept.-Oct.) 1941

Cosmetic Operation on Varices of Lower Extremities. B. Hejduk.—p. 27.
Bright and Dark Aspects of Chemotherapy. L. J. Chwat.—p. 32.
*Report of Diseases in Polish Soldiers Treated in Scotland in Summer of 1940. H. Długosz.—p. 48.
*Experience of the German Health Service During the Polish Campaign. S. Strumienski.—p. 52.

Diseases of Polish Soldiers in Scotland.—During the summer of 1940 in one field hospital of the Polish camp in Scotland, 1,065 patients were examined. The most frequent infectious disease was scabies (196 cases). It recurred only if disinfection was not adequate. Among 80 with venereal disease there were 31 with recent syphilitic infection, 6 with an old infection, 1 with tabes dorsalis and 42 with acute gonococcic infection. Troops should be examined two or three days after week end permits. Seventy cases of malaria of different forms were successfully treated with quinine and neoarsphenamine. All the primary infections took place in military camps in Rumania, in the Babadak area. Other diseases were tuberculosis, rheumatic diseases, traumatic casualties, acute and chronic diseases of the alimentary tract, acute appendicitis, illnesses of the respiratory system of nontuberculous origin, diseases of the cardiovascular system, nephrolithiasis, cystitis, neurosis (in 29), tonsillitis, otitis media, hepatic and biliary duct diseases, furunculosis (in 15), errors of refraction and 1 each of salivary calculus and foot and mouth disease.

Experience of German Health Service During Polish Campaign.—According to Strumienski the German literature from September 1939 to June 1940 is conflicting as to their preparedness for the evacuation and treatment of the wounded and ill brought about by the mechanized war. Their methods of evacuating the wounded were really not organized for perfect functioning. Contagious diseases and surgical war wounds were their most important concern. The first epidemic of Shigella dysentery occurred by the end of September 1939, when many German soldiers were afflicted. The mortality rate was approximately 10 per cent. The German epidemiologist Werner states that at the end of September 1939 epidemic typhus struck the German soldiers. Wildegans writes that the first medical problem of the army in Poland was the transportation of the wounded and ill from the combat zone; they were moved frequently from one station to another and it was several days before they reached a permanent hospital. The situation was similar to that existing in the first world war. Wounds from the manning of various war arms were less numerous among the Polish than among the German soldiers. Later the situation became more favorable to the Germans; such wounds comprised only 50 per cent of a 5,000 bed capacity of a military hospital in Poland. However, there was a greater number of such German wounded during the invasion of Warsaw and almost all required surgical treatment. True primary open wounds, when arriving at the hospital, were heavily infected, but still they were easier to treat than the primarily closed (sutured) wounds. The author encountered but 9 instances of gas gangrene among 10,000 wounds.

Voprosy Nevrokhirurgii, Moscow

6:1-49 (no. 3) 1942. **Partial Index**

*Surgical Technic in Craniocerebral Wounds. N. I. Propper-Grashchenkov.—p. 3.
Morphology of Spinal Fluid in Purulent Meningitis. D. A. Shamburov.—p. 18.
*Syndromes Associated with Lesions of Premotor and Motor Zones in Gunshot Wounds of Cranium; Pyramidal Syndrome. E. V. Shmidt.—p. 40.

Surgical Technic in Craniocerebral Wounds.—Propper-Grashchenkov advocates a liberal use of sulfonamides in the treatment of penetrating craniocerebral wounds, which under conditions of present day warfare are almost invariably infected. Beginning at the first aid station, 1 Gm. of sulfanilamide or sulfapyridine should be given internally every four hours. After primary excision of the wound with removal of superficial fragments of metal and bone, a mixture of sulfanilamide and sulfamethylthiazole in the form of an emulsion or a powder should be applied. Specialized neurosurgical units should be attached to the field hospitals to insure early treatment and to limit the stages of evacuation. These units should be equipped with x-ray apparatus and should have plentiful supplies of sulfonamide compounds and a sufficiently large nursing staff to provide individual care for the wounded. This type of wounded should maintain a recumbent posture during transportation, and jolting should be avoided as much as possible. Traumatic meningitis is to be actively treated by intraspinal injection of an 0.8 per cent solution of sulfanilamide, peroral administration of sulfapyridine (1 Gm. every four hours) and abundant local treatment of the wounded with a mixed powder or emulsion of sulfanilamide and sulfamethylthiazole in a ratio of 1:2. Toxic effects on the blood may be detected early by noting the appearance of granulated neutrophils and beginning leukopenia. The most effective method for prophylaxis of cerebral abscess is the radical removal of bone fragments and infected metal splinters. Prolapse of the brain indicates a developing meningitis, abscess or gas gangrene and calls for causal therapy. Gas gangrene of the brain is a frequent complication and should be treated by surgical intervention and liberal use of sulfonamides. After infection of the wound has been arrested, granulation and epithelization may be stimulated by application of balsam oil dressings and ultraviolet irradiation. Increased intracranial pressure may be relieved by intravenous administration of a 40 per cent dextrose solution and a 10 per cent solution of sodium chloride. Magnesium sulfate should not be used at the same time as the sulfonamide preparations, since it increases their toxic properties.

Syndromes of Premotor and Motor Zones.—Shmidt reports 2 cases of tangential cranial wounds with fracture of the internal plate of the cranial bones in which small fragments of bone injured a narrowly circumscribed area of the brain, producing syndromes of motor and premotor cortical lesions first observed by Fulton in experimental animals. Although the type of wound was essentially the same in the 2 cases the clinical picture was quite different. In the first case there was paralysis of the right leg with decreased tonus, positive Babinski and Oppenheim reflexes, slightly intensified tendon reflexes and foot clonus. These symptoms indicated an involvement of the motor zone (area 4 and the pyramidal tract). The second case presented a syndrome of premotor zone lesion—spastic paralysis with greatly intensified tendon reflexes, clonus, positive Rossolimo and Bekhterev-Mendel reflexes, grasping reflex of the foot and fanlike spreading of the toes in connection with an exaggerated plantar reflex. There were also definite vegetative disturbances. According to Shmidt the Rossolimo reflex is not a genuine pyramidal symptom but occurs in connection with lesions of area 6 and its pathways. Likewise spasticity is a symptom of the same type of lesion, only it is provoked by a more severe injury. A definite demarcation of the motor and premotor syndromes explains the frequent cases of "dissociated pyramidal syndrome" when either one or the other of its characteristic components is absent.

Book Notices

The Principles and Practice of Obstetrics. By Joseph B. De Lee, A.M., M.D., and J. P. Greenhill, B.S., M.D., Attending Obstetrician and Gynecologist, Michael Reese Hospital, Chicago. Eighth edition. Cloth. Price, $10. Pp. 1,101, with 1,074 illustrations. Philadelphia & London: W. B. Saunders Company, 1943.

Since 1913 there have been six editions of the De Lee textbook. Between the seventh and eighth editions Dr. De Lee died. Two years before his death he asked Dr. J. P. Greenhill to prepare the eighth edition.

In making this revision, the author has endeavored to maintain the high standard set by Dr. De Lee for this book. Nearly all the additions, deletions and corrections were submitted to Dr. De Lee and received his approval. One of the major changes is a rearrangement of the material in the first third of the book. English terms have been substituted for Latin terms in naming presentation and position. New chapters have been added concerning obstetric and gynecologic endocrinology, the use of vitamin K in obstetrics, erythroblastosis fetalis, vitamins and minerals, roentgenography in obstetrics, the sulfonamide drugs in obstetrics and the Waters extraperitoneal cesarean section.

Among the sections which have been completely rewritten are those dealing with the toxemias of pregnancy, contracted pelves, puerperal infection, pyelitis, the acute infections, analgesia and anesthesia, the use of solution of posterior pituitary and of ergot, and cesarean section. Many old illustrations have been omitted and many new ones have been added. Each of the bibliographies has been revised to bring it up to date. In his preface the author recognizes the assistance and the contributions of a number of physicians who have aided in maintaining the quality of the book. The index, which occupies more than thirty pages, is one of the most useful features of this most practical volume. The publisher has done a magnificent job in selecting for the work a light weight paper with an excellent finish, so that the illustrations are of extraordinary quality.

The textbook is one of the most complete and at the same time one of the most practical works available in its field. The varied emphasis obtained by the use of different sizes of type and by the nature of the presentation makes it an exceedingly useful book to the student, the practitioner or the specialist.

Treatment of Fractures. By Guy A. Caldwell, M.D., F.A.C.S., Professor of Orthopedic Surgery, Tulane University of Louisiana School of Medicine, New Orleans. Cloth. Price, $5. Pp. 303, with 92 illustrations. New York & London: Paul B. Hoeber, Inc., 1943.

Dr. Caldwell states in his preface that he is undertaking to present one or two procedures for each of the common types of fracture which have given good results in his own experience. He recognizes, as most of us do, that far too many and much too complicated technics and apparatus have been proposed. The average surgeon or general practitioner finds it difficult to make a selection from among them for the cases that fall into his hands. Dr. Caldwell's discussions of the different kinds of fractures and his descriptions of the treatment methods employed are generally clear and practical. The bibliographies show extensive reading and study but go much beyond the material presented.

Recommendations for the early operative treatment of simple fractures might lead, as they have in previous journal articles and textbooks, to operation too early and to procedures beyond the capacity of the average surgeon. Dr. Caldwell does indeed state quite accurately the points involved but fails to emphasize the difficulties and danger of complications which may be encountered unless the doctor's facilities, experience and technic are such as to justify him in operating on fracture patients. After all, Dr. Caldwell's book is not written for the specialist.

In the treatment of compound fractures the control of hemorrhage, treatment of shock and wound medication are all given precedence over the reduction of the fracture and immediate immobilization. These should always be a first item of consideration. Also "The object of débridement is to remove all foreign material and devitalized tissue. This is accomplished by excising the skin margins for a distance of about one eighth of an inch and enlarging the wound sufficiently." This is open to misunderstanding and misinterpretation, so that excision is done instead of the drainage operation which should always be the principal object of the surgical procedure. Adequate drainage may usually be provided without removal of any skin or much other tissue. Nature should have the responsibility of separating the tissue that is going to die from living tissue, which can be used in repair in a majority of these cases.

As is to be expected nowadays, the sulfonamide drugs are given a prominent place in the primary treatment of compound fractures. This leaves out of consideration the toxic character of the sulfonamide drugs, the fact that their role in infected wounds is still imperfectly understood and finally the fact that most wounds will recover with soap and water preparation and no chemical therapy whatever if the principles of surgical treatment are observed.

In chapters on fractures of the clavicle and scapula and fractures of the spine, simple efficient treatment is recommended and explained clearly and in satisfactory detail. The hanging cast of John Caldwell for fracture of the shaft of the humerus is described and recommended. This treatment does not conform to the principles of fracture treatment and should be accepted, if at all, with great caution. The hanging effect and exactly the position desired may be obtained by a body and arm cast in which immobilization is assured and complications of certain kinds much more certainly avoided.

One point of importance in the treatment of the fractures of the lower leg and ankle is that manipulative reductions are recommended without traction. In many of these cases adequate traction is a fundamental preliminary requirement; manipulation without traction should generally be avoided. Pin traction through the heel with molding of the fragments into place in many lower leg and ankle fractures is the only satisfactory way to insure length and even correct relationship of the tibia, fibula and soft parts in the foot and ankle as a whole. It might be mentioned as a minor comment that the word traction does not even appear in the index of Dr. Caldwell's book, which in itself suggests that this item in treatment is given inadequate consideration.

Biología y tratamiento de las heridas. Por el Dr. Luis Gubern Salisachs, cirujano de número del Hospital de Badalona, Badalona. Con un prólogo del Dr. J. Puig Sureda. Cloth. Pp. 486, with 204 illustrations. Barcelona & Buenos Aires: Salvat Editores, S. A., 1941.

The author of this book is a surgeon who has lived through the experiences of the Spanish Civil War. Although, no doubt, the multiple problems of a practical nature which came out of this war, problems which had to be solved often in the most precarious circumstances, were the direct motivation for his writing, the author has kept his book far above a simple manual in which clinical impressions are empirically recorded.

The first part, comprising fourteen chapters, is devoted entirely to the scientific principles governing the biology of injury and repair and of wound infection. The views of Carrel, Leriche, Harvey and others are amply considered, and the newer knowledge on the processes of infection and resistance are carefully discussed. Every field in physiology, pathology and bacteriology is explored to yield data for a better understanding of the main topic of wound healing and wound infection, but this is done so thoroughly that the first part of the book is in itself a treatise of general pathology of interest to any student of medicine and biology.

The second part, devoted to the treatment of wounds, comprises another twenty-two chapters and it is in this part that original contributions of direct interest to the war surgeon are to be found. In this part we often come across the names of such surgeons as Carrel, Quénu, Delbet and Böhler, men who crystallized in their books the teachings from the first world war. We find also such names as Trueta, Gomez-Duran, Eguiagaray and Argüelles, who preceded the author in writing about war surgery in the Spanish conflict. The practice of operating regardless of advanced shock in patients is upheld. The usefulness of removing large segments of veins to avoid further extension of thrombophlebitis and septicemia is supported by adequate examples. Also the proper type of suture is indicated in each case.

In the treatment of gas gangrene, Gubern disagrees with Trueta on the application of the latter's method in severe cases and gives his reasons for so doing. The author's favored method seems to be that of Carrel modified by himself in that the wounds are irrigated when uncovered. This method he applies to wounds in which suture after surgical cleansing is contraindicated or in those previously infected. The methods of Trueta and Orr are amply discussed.

The last chapters are devoted to treatment by physical agents —sunlight being the best—antiseptics, maggots and several others. Orthopedics is also resorted to when the acute phase of the process has subsided.

Two very important items, treatment by sulfonamide compounds and therapeutics of shock, are only slightly dealt with. No new teachings on these two points emerged from the Spanish Civil War. There was neither time nor equipment for research, and there were no large amounts of drugs to be tested. These are the points left to be solved by war research going on at present in so many laboratories.

In the same way in which historians of the future writing on the second world war will have to consider the Spanish conflict as a foreword to it, so, no doubt, will surgeons of the future writing on war wounds have to take into consideration as a starting point what was sadly learned in Spain, the facts of which are crystallized in this book. Therefore the book is a precious document and its translation into English would be highly desirable.

Comparative Vertebrate Anatomy. By Libbie Henrietta Hyman, American Museum of Natural History, New York. Second edition. Cloth. Price, $3.50. Pp. 544, with 136 illustrations. Chicago: University of Chicago Press, 1942.

Comparative anatomy is usually presented as a dry as dust course from which most students carry away an array of polysyllabic words and a vague impression that the vertebrates, including man, have developed from a diagram of a primitive chordate. Hyman's excellent presentation of the subject should do much to counteract this impression. With its functional and dynamic approach, presented in scholarly yet readable and stimulating fashion, it presents comparative anatomy as a grand developmental process. Embryologic, microscopic, gross and physiologic data appear as a cleverly interwoven tissue. Many of the problems and unanswered questions are clearly placed for all to see. This volume should be the leading textbook in its field. As in the past, it will serve as an important aid to many future physicians in their attempts to answer many of the "whys" and "how comes" of the human body. It serves as both laboratory manual and textbook. The latter has been considerably enlarged over the previous edition and clearly reflects a long continued, careful perusal and evaluation of much of the enormous descriptive and experimental literature. The illustrations are excellent.

Lupus eritematoso (estudio clínico sobre 156 observaciones). Por el Dr. Felix Eduardo Ambrosetti. Tesis. Universidad nacional de Buenos Aires, Facultad de ciencias médicas. Paper. Pp. 180, with illustrations. Buenos Aires: Imprenta de Alfredo Frascoli, 1942.

The author summarizes his extensive studies in twenty-nine conclusions, some of which follow. The incidence of the disease is 0.78 per cent of the total of dermatoses studied. Its relation to genuine skin tuberculosis is at the rate of 3 to 1. Cases in females are twice as frequent as in males, the highest incidence being between 20 and 30 years. Epithelioma as a complication was observed in only 2 cases. Sixty per cent showed radiologic signs of tuberculosis and 80 per cent responded to the intradermoreaction with tuberculin. Tuberculosis is not the only cause, for the disease is systemic and the result of several factors. Treatment with chaulmoogra oil and bismuth salts gives satisfactory results. Three hundred and eighty-four references and numerous illustrations are appended.

Cytology and Cell Physiology. Edited by Geoffrey Bourne. Cloth. Price, $6. Pp. 296, with illustrations. New York & London: Oxford University Press, 1942.

The mere existence of this book is worthy of comment, since it was written in Great Britain during the heaviest air raids, some of it actually in air raid shelters. The editor states in his preface that probably some part of every chapter was written within the sound of falling bombs. That a composite work by nine authors could be brought together and attractively published under such difficulties is another evidence of British energy and tenacity.

Its eight chapters constitute a review by a group of workers, most of them relatively young, of selected aspects of cytology and of certain fields of biochemistry and biophysics which have something to contribute to our knowledge of cell structure and cell physiology. Its aim is to bring together the work in these fields in the hope of joint progress in the future. The authors assume that the reader has a general knowledge of cytology and they cover only the work of the past few years. On the one hand the book touches on morphology, including microscopic technic, the cell organelles such as mitochondria and the Golgi apparatus, the nucleus and the chromosomes; on the other hand it discusses the physical characteristics of cytoplasm, surface phenomena, the new monolayer technic, the study of mineral constituents by microincineration and microchemistry, and enzyme systems.

These chapters are all carefully and clearly written, and they assemble information which has not been brought together elsewhere; but they leave us all too well aware that cytology cannot yet be greatly clarified by considerations drawn from physics and chemistry. Microscopic observation has added very little in the past few years to what it long since taught us about protoplasm, while it is as yet too early to get more than a glimpse of the light which is to come from physical chemistry. Only here and there in this book, as for example in the chapter on the monolayer technic as applied to substances of biologic importance, do we get a tantalizing glimpse of the future science of cytology. This disappointment is partly inherent in the subject matter, but it must be added that the book itself lacks the master's touch that might give unity and direction to the few real gains of recent years.

Its usefulness is therefore limited, for it is not intended to be a textbook for new students of cytology, nor does it go far enough to serve the advanced worker. For the graduate student beginning his research in physiologic cytology, and for the histologist or pathologist who needs to brush up on the recent work, it contains much information and a comprehensive bibliography.

Heart Disease Is Curable. By Peter J. Steincrohn, M.D. Cloth. Price, $1.98. Pp. 193. Garden City, New York: Doubleday, Doran and Company, Inc., 1943.

The chief objection to this book is its title. In the opening chapter the author states that by "curable" he means that which may be made much better and not necessarily all better. Yet one cannot escape the conviction that the title is designed to stimulate the interest of the prospective purchaser. The author writes in language which the layman can understand concerning the various types of heart disease and their management. He emphasizes the importance of early symptoms and urges prompt medical attention in order that a proper regimen may be planned for the individual case. He also offers sound advice to the person who has the fear of heart disease rather than the disease itself. On the whole the book should prove helpful to the person who wishes to know something of the nature of heart disease and of the way to live with it.

Laboratory Manual on Fundamental Principles of Bacteriology. By A. J. Salle, B.S., M.S., Ph.D., Associate Professor of Bacteriology, University of California, Los Angeles. Second edition. Cloth. Price, $1.50. Pp. 184. New York & London: McGraw-Hill Book Company, 1943.

This manual was written especially to accompany the author's textbook "Fundamental Principles of Bacteriology." Material is included to meet the requirements of beginning students in bacteriology and for students in various divisions of agriculture as well as forestry, home economics, pharmacy, dentistry, sanitary engineering, chemistry, physical education, hygiene and public health. The experiments are arranged for a one semester course of six laboratory hours a week. A brief introduction explains the purpose and value of each exercise. At the end of each exercise, questions are given. This manual may be recommended to students in elementary courses in which the author's textbook is used.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

ROCKY MOUNTAIN SPOTTED FEVER AND DISTRIBUTION OF TICKS

To the Editor:—I should like to have detailed information concerning available preparations for prophylaxis against tick bite fever. I am not familiar with the species of ticks in this section. I have a patient whose country place is heavily infested with ticks. There are two children in the family, and the mother is anxious to have them immunized. Any information you have concerning sprays to be used on the lawn, pets and so on will be appreciated.

M.D., Arkansas.

ANSWER.—There are at present two preparations available for immunization against Rocky Mountain spotted fever (tick bite fever). The first of these is the vaccine prepared from infected tick tissues treated with phenol and solution of formaldehyde. This is the so-called Spencer-Parker vaccine that has been prepared by the United States Public Health Service for some fifteen years. It is distributed without charge to physicians in areas where the disease is endemic. It can be obtained by a physician on request addressed to either the Rocky Mountain Laboratory, Hamilton, Mont., or the National Institute of Health, Bethesda, Md.

The second vaccine that is available for the immunization against Rocky Mountain spotted fever is that prepared from the infected yolk sacs of fertile hen's eggs. This vaccine has been in use in certain sections of the United States for the past several years. The yolk sac vaccine is less difficult to prepare and may eventually supplant the tick tissue type material. One of the biologic laboratories has been licensed to manufacture the egg vaccine but because of press of war work it is doubted that the material is commercially available at this time. However, until such time as it is commercially available, this type of vaccine can also be obtained from the Public Health Service either at the laboratories in Hamilton, Mont., or in Bethesda, Md. In certain states where the attack rates warrant such procedure an adequate supply for each year has been sent to the state health department early in the tick season. In areas where the disease is commonly seen, therefore, vaccine can be obtained, without charge, directly through the state health officer.

Up until recently Dermacentor andersoni (the common wood tick of the Rocky Mountains) and Dermacentor variabilis (the brown dog tick, eastern wood tick) were the only two ticks implicated in the transmission of spotted fever to human beings. During the past few months, Parker and his associates have found another possible vector, Amblyomma americanum (lone star tick) commonly found throughout the southern and southwestern part of the United States. The distribution of these three ticks is such that for practical purposes one can assume that there are few if any areas of the United States that are free from an effective vector of the disease.

There has not been described a tick repellent or spray that is very effective. The U. S. Department of Agriculture has recommended derris powder to use on dogs either as a powder or as a dip. The derris powder should have a rotenone content of at least 2 per cent. An effective dip or wash can be made by dissolving an ounce of soap in a gallon of water and adding 2 to 4 ounces of derris powder containing 4 per cent rotenone. The powder should be applied to the dog at intervals of two to three days and the wash or dip at intervals of five to six days. The handling of dogs or other animals infested with ticks is hazardous and should be done with care. Tweezers should be used to remove ticks if possible; otherwise the fingers should be protected with a piece of cloth or paper. The hands should be carefully washed afterward with soap and water and rinsed in alcohol to sterilize following soilage with contents of any possibly infected ticks.

OPERATION FOR CATARACT

To the Editor:—What is the percentage of successful operations for cataract?

Israel Herman, M.D., Paterson, N. J.

ANSWER.—The answer depends on the character of the cataract, on the patient and on the operator. The average skilled operator produces useful vision in about 96 to 98 per cent of operations for uncomplicated senile cataract, provided there are no other ocular abnormalities.

EFFECT ON FETUS OF QUINIDINE ADMINISTERED IN PREGNANCY FOR PAROXYSMAL TACHYCARDIA

To the Editor:—A white woman aged 38, five months pregnant, has had recurrent attacks of auricular fibrillation for the last three or four years. No organic heart disease is demonstrable. The electrocardiographic tracing is normal in all four leads except during the attacks of paroxysmal auricular fibrillation, and then the tracing corroborates this rhythmic disturbance. There is no thyroid struma and there are no nodules palpable. The basal metabolic rate is minus 8 and the blood cholesterol is 333 mg., normal 140 to 170 mg. Her blood pressure is 110/80. There are no demonstrable foci of infection. The attacks respond promptly to 15 to 20 grains (1 to 1.3 Gm.) of quinidine sulfate. Is quinidine sulfate detrimental to the acoustic nerves of the fetus? Does this constitute a contraindication? If it does, what medication is suggested for the attacks or in the interim? Discussion of the etiology, not only in regard to the thyroid but as to the other possible causes, will be appreciated.

John F. Rainey, M.D., Anderson, S. C.

ANSWER.—There are no published reports on the effect of quinidine sulfate on the acoustic nerves of the fetus. However, quinine, another of the cinchona bark derivatives, when given in large doses, may cause functional impairment of the eighth nerve (Goodman, Louis, and Gilman, Alfred: The Pharmacological Basis of Therapeutics, New York, Macmillan Company, 1940, p. 91). Correspondingly large doses administered to pregnant experimental animals have been shown to produce degenerative changes in the myelin sheath of the acoustic nerve (Covell, W. P.: A Cytologic Study of the Effects of Drugs on the Cochlea, *Arch. Otolaryng.* **23**:633 [June] 1936. West, R. A.: The Effect of Quinine on the Auditory Nerve, *Am. J. Obst. & Gynec.* **36**:241 [Aug.] 1938).

Although quinidine in large doses as well as quinine may give rise to symptoms of cinchonism, doses as small as 15 to 20 grains of quinidine sulfate should not be harmful to the patient or fetus (unless there is an idiosyncrasy to the drug). There is therefore no reason for discontinuing the quinidine therapy.

Alternative treatment would be full digitalization in the interim between attacks (1½ grains [0.1 Gm.] three times a day for a week, depending on the reaction of the patient) with subsequent maintenance dosage varying with the needs of the patient (1½ grains daily).

Paroxysmal auricular fibrillation occurs frequently in association with hypertensive, arteriosclerotic and rheumatic heart disease, before the fibrillation becomes chronic. Its relationship to thyrotoxicosis is well established. When organic heart disease is not present, many varied conditions have been suggested as contributory and precipitating factors. These have been classified by Orgain, Wolff and White (Uncomplicated Auricular Fibrillation and Auricular Flutter, *Arch. Int. Med.* **57**:493 [March] 1936) into (1) toxic factors, including (*a*) infections (such as pneumonia), (*b*) drugs (epinephrine, digitalis, ether), (*c*) other chemical agents (carbon monoxide, alcohol, tobacco), (2) traumatic factors, (3) reflex mechanisms (secondary to appendicitis, gallbladder colic), (4) exertion, (5) neurogenic influences, including mental excitement and emotional disturbance.

When organic heart disease is excluded, paroxysmal auricular fibrillation is as benign as paroxysmal tachycardia of supraventricular origin.

Since nervous excitement and emotional strain have been frequently cited as precipitating attacks of paroxysmal auricular fibrillation in susceptible individuals, reassurance of this patient, alleviation of her fears or the emotional strain aroused by the pregnant state are important adjuncts to therapy and, together with quinidine or digitalis prophylactically, should reduce the frequency of the attacks.

SUBCUTANEOUS EMPHYSEMA AFTER DELIVERY

To the Editor:—I have a patient who, two days after delivery, showed rather pronounced cervical and upper thoracic emphysema of the subcutaneous tissues. X-ray examination showed that the emphysema extended into the mediastinum, but there was no evidence of pneumothorax. Delivery was spontaneous and uncomplicated except for the fact that the patient's response to anesthesia (gas-oxygen-ether) was bad, being accompanied by much retching, vomiting and coughing. I should like you to explain the mechanism in this case.

Captain, M. C., A. U. S.

ANSWER.—Emphysema of the cervical and upper thoracic, as well as the mediastinal subcutaneous tissues, usually arises as a result of trauma to the tracheal or esophageal passages. There is rarely evidence of pneumothorax in these cases. This trauma may be so trivial that a careful examination may fail to reveal it. In the resuscitation of the newborn, similar emphysema may develop without gross evidence of the trauma in the trachea or the esophagus at necropsy. It is possible that the retching and coughing associated with the anesthetic produced the trauma, which provided the avenues for the escape of the gas into the subcutaneous tissues.

HICCUPS IN YOUNG WOMAN FOLLOWING ABDOMINAL OPERATION

To the Editor:—Please advise the therapeutic regimen in the case of a single woman aged 23 who was operated on for a ruptured appendix two years ago and who suffers from persistent and loud hiccups. The condition began about six months after the operation. Hysteria has been excluded.

Victor J. Covalesky, M.D., Perry Point, Md.

ANSWER.—It is difficult to evaluate a case of hiccups in a woman aged 23 without any more clinical and laboratory evidence than is presented in this query. The hiccup may be the result of a peritonitis associated with a ruptured appendix and adhesions formed between the stomach and the diaphragm. The fact that they came on six months later is suggestive of a possible psychogenic origin for the hiccup. It might be well to investigate carefully the patient's history to see if it is connected with any manifestation of her early life or in some way simulates some emotional disturbance which may have been in the immediate members of her family. Other organic conditions for the hiccup have doubtless been ruled out. Temporarily, relief may be obtained by the inhalation of carbon dioxide just previous to or even during the hiccup. If sedation and this particular method is of no benefit, high voltage roentgen therapy, carefully controlled, over the affected leaf of the diaphragm might be of some value.

PROLONGED MEDICATION WITH DIETHYLSTILBESTROL

To the Editor:—I am writing for information relative to the prolonged use of diethylstilbestrol in the treatment of the menopause. What is the longest reported period of continuous and prolonged medication? Also please advise if the carcinogenic properties of the drug that are alleged and anticipated have been proved, and, if so, where I might find authoritative references.

Robert M. Foote, M.D., Fort Worth, Texas.

ANSWER.—Prolonged periods of medication with diethylstilbestrol were reported by von Haam and his associates, who treated patients up to six months. Mazer and his associates treated patients for as long as fourteen months, and MacBryde and his associates for twelve months or longer.

Geschickter reported mammary carcinoma in rats, with natural estrogens and with diethylstilbestrol. The dosages were ten to twelve times more than the threshold doses. While it is true that carcinoma can be produced in experimental animals with extremely large dosages of natural estrogens, especially in cancer susceptible mice, there seems to be a paucity of literature on the experimental production of cancer by the use of diethylstilbestrol.

References:

von Haam, Emmerich; Hammel, M. A.; Rardin, T. E., and Schoene, R. H.: Clinical Studies on Stilbestrol, THE JOURNAL, Dec. 28, 1940, p. 2266.

Mazer, Charles; Israel, S. Leon, and Ravetz, Elkin: The Synthetic Estrogen Stilbestrol, *ibid.*, Feb. 22, 1941, p. 675.

MacBryde, Cyril M.; Freedman, Harold, and Loeffel, Ellen: Studies on Stilbestrol, *ibid.*, Dec. 23, 1939, p. 2320.

Geschickter, C. F.: The Relationship of Estrogens to Mammary Cancer, read at the Third International Cancer Congress, Atlantic City, N. J., Sept. 11, 1939.

CHRONIC URTICARIA IN PROSPECTIVE BLOOD DONOR

To the Editor:—A prospective blood donor for plasma had a minor trauma three years ago and treatment was accompanied by the usual prophylactic injection of antitetanus serum. Since that time the donor has had a skin reaction one or more times a day, nearly every day, in the form of localized urticaria, and careful observation by the donor has failed to identify any consistent activating element. The urticarial eruption will appear in various locations at different times, no area appearing to be free from reaction at sometime or other. It does not follow the ingestion of food or any type of food. It is apparently not related to contact with any types of objects or material. The wheals remain for an hour or so and then disappear. They itch; if the donor scratches them they are longer in disappearing. The donor also has a severe dermatographic reaction. She is otherwise healthy and in good physical condition. Is there any contraindication to her donating blood for blood transfusions or is there any contraindication to her donating blood to be processed into plasma? By contraindication I refer both to the donor and to the possible recipient.

Watson W. Eldridge, M.D., Washington, D. C.

ANSWER.—Chronic urticaria occasionally follows an injection of antitetanus serum or other serum developed from horse's blood. There is not, however, any contraindication to using the patient's blood for transfusion or for plasma. Removal of blood would certainly not affect the donor and almost certainly would be without ill effect on the recipient. If a person is known to be allergic to a certain substance, e. g. horse dander or ragweed, the recipient may become temporarily sensitized. This sensitivity disappears in about a month. As definite evidence of sensitivity is absent in this individual, there is no objection to her giving blood.

ECCHYMOSES ABOUT THE EYES

To the Editor:—A white man aged 35 in good health has a persistent dark discoloration about the eyes two months following an operative procedure producing ecchymoses in these areas. How long might this condition persist and what measures might be taken to hasten its disappearance?

M.D., New York.

ANSWER.—Two months seems rather long for the persistence of an ecchymosis. It is difficult to estimate the time before disappearance, but this disappearance should be hastened somewhat if warm fomentations are applied and well tolerated. The possible good of the fomentations, however, might be less than the discomfort incident to their application.

ELECTROCARDIOGRAPHIC JELLY

To the Editor:—I am interested in knowing a good formula for electrocardiographic jelly. Would you please send me a copy of one?

Harry Sohn, M.D., Brooklyn.

ANSWER.—

		Gm or Cc.
Phenol (carbolic acid)	½ oz.	2 | 0
Potassium bitartrate	2 oz.	7 | 5
Gum tragacanth	4 oz.	15 | 0
Glycerin	12 oz.	47 | 0
Pumice (powder)	1 or 2 lb.	60 or 120 | 0
Sodium chloride	3 lb.	180 | 0
Water	1 gal.	500 | 0

Little pumice is necessary with the amplifier type, whereas the double portion is better for use with the string galvanometer type of machine.

Heat the gum tragacanth and glycerin in half the volume of water for six hours. Dissolve the potassium bitartrate and the sodium chloride in the remaining water. Combine and stir the resulting mixture thoroughly with an electric mixer and heat again for an hour. Add the phenol and pumice, with more water, if necessary, and mix again until of creamy consistency. One drachm (4 cc.) of perfumed oil of lilac may be used, but this practically doubles the cost.

PROTAMINE ZINC INSULIN IN EVENING INSTEAD OF MORNING

To the Editor:—Would there be any objection to giving protamine zinc insulin in the evening instead of the usual morning dose? A patient is getting insulin in the morning but it would be easier for the person giving the insulin to do so in the evening because of more time to do so then. I do not know how this would affect insulin action and should appreciate an opinion.

Arthur A. Thieda, M.D., Cicero, Ill.

ANSWER.—There is no objection to giving protamine zinc insulin before the evening meal instead of before the morning meal. In general it is easier to educate groups of patients to take it at the same time, because then one patient tells the other of any complications which arise. Often patients whose work hours are altered in the course of a month maintain their injection of protamine zinc insulin at the same time of the day without mishap, despite radical changes in meal hours.

Protamine zinc insulin without crystalline insulin suffices for 80 per cent of the older diabetic patients, whereas crystalline insulin is required in addition for 80 per cent of the younger diabetic patients. Presumably it would be among the older diabetic patients that insulin could be given before the evening meal as satisfactorily as before the morning meal.

CHOREA OR GILLES de la TOURETTE'S DISEASE

To the Editor:—The query on page 1186 of The Journal, April 3, 1943, concerning "Chorea with Emotional Behavior Disturbance," should be given a different interpretation from that offered in the reply. The girl's condition evidently was not that of chorea, from which the patient "apparently made a recovery," but that of general tick or tic malady. It is also known as disease of Gilles de la Tourette, who in 1885 eliminated from the clinical picture of ordinary chorea a group of symptoms—restless movements occasionally associated with utterances of obscene words—into a special morbid entity. The prognosis for recovery is not very good but it may occur. Any good book on neurology or pediatrics (e. g. Abt's System, volume 7) deals extensively with the differential diagnosis between chorea and general tic of Gilles de la Tourette.

George B. Hassin, M.D., Chicago.